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(74) Agent: AHEARN FOX; Level 4, 141 Queen Street, Brisbane, QLD 4000 (AU).

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(71) Applicant (for all designated States except US): STAND-FAST ENTERPRISES LIMITED [AU/AU]; Unit 2/8 Camford Street, Milton, QLD 4064 (AU).

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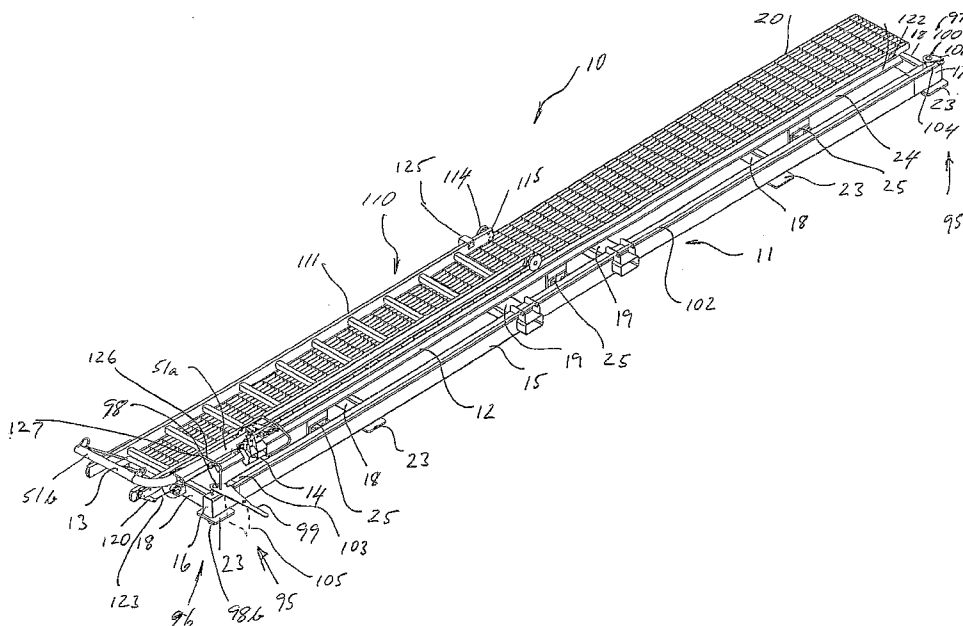
(72) Inventors; and

(75) Inventors/Applicants (for US only): BAKER, Cameron, MacMillan [AU/AU]; 49 Gem Street, Kenmore, QLD 4069 (AU). TRACY, Grant [AU/BE]; Bruxelles 15 BP 20, B-1150 Woluwe Saint Pierre (BE). STRAKER, Noel [AU/AU]; 93 Gold Creek Road, Brookfield, QLD 4069 (AU).

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(54) Title: A SUPPORT ASSEMBLY



(57) Abstract: This invention relates to support assembly (10) that may be used to provide support for a person when moving about on an elevated part of a structure, such as an ISO shipping container or an ISO tank. The support assembly (10) includes a transportable guide support (11), on which there is mounted a guide (12), and a support structure (13) that is pivotally connected to a base (14), which itself is capable of movement along the guide. The transportable guide support, in use, may be located on top of the elevated structure.

WO 2007/041781 A1



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A SUPPORT ASSEMBLY

This invention relates to a support assembly.

This invention has particular, but not exclusive application to a portable support assembly
5 for supporting a person when moving about on an elevated part of a structure, such as a roof of an
ISO shipping container or an upper part of an ISO tank, and for illustrative purposes reference
will be made to same. However, it will be appreciated that the invention may be used in other
applications such as a means of providing support for a person while working on a roof of a
railway carriage, gantry or other elevated structure.

10 ISO shipping containers of varying lengths have become the standard means for
transporting cargo on ships, trains and trucks and wherein there are containers that have been
designed to carry specific goods, such as refrigerated containers which include their own
refrigeration unit. ISO shipping containers typically include a box-shaped ISO frame that is
covered with cladding and which includes at least one opening that may be selectively closed by
15 one or more doors.

ISO tanks have been used extensively to transport pressurized fluids. ISO tanks typically
include one or more tanks that are mounted within an open, box-shaped ISO frame.

ISO shipping containers and ISO tanks also include an ISO corner casting or corner fitting
in each corner of the ISO frame and wherein the corner casting or corner fitting may be used to
20 secure the container or tank to a deck or hold of a ship, a chassis of a motor vehicle, a train
flatbed, or to adjacent containers or tanks. The corner castings are hollow, resemble a cube, and
include three outer facing side walls in which there is formed a large aperture.

From time to time it is necessary, whether this be for maintenance, cleaning or other
reasons, for persons to move about on a roof of an ISO shipping container or an upper part of an
25 ISO tank. A ladder is often used to provide access to the roof or upper part and wherein studies
have shown that the vast majority of falls suffered by persons occurs when they attempt to move
from the ladder on to the roof or upper part.

Various safety apparatus for use by persons who are required to move about on elevated
structures, such as the roof of a railway carriage, are known. Typically the safety apparatus
30 includes an elongate guide that is mounted on the structure and a support structure having a base
that is adapted to engage said guide and which is capable of movement along said guide. The

safety apparatus may also include a harness that the person can wear, and which itself is capable of being secured to the support structure.

A problem associated with support apparatus of this type is that they are not transportable. Given the large numbers of ISO shipping containers and ISO tanks that are currently being used
5 around the world, it is not considered economically viable to fit each container and each tank with support apparatus. In addition, it is believed that the permanent mounting of a support apparatus to an existing ISO shipping container or ISO tank would inhibit the stacking of containers and tanks one on top of the other and/or side by side.

In the case of ISO tanks, a transportable platform having a railing that extends
10 along one longitudinal side thereof and which includes attachment means that is adapted to engage adjacent corner castings for the purpose of securing the platform to an upper part of an ISO frame is known. However, while the platform may provide adequate support for a person when moving about or working on top of an ISO tank, the platform does not provide support for the person when climbing on to the elevated structure.

15 It is an object of the present invention to provide a support assembly that ameliorates at least some of the deficiencies of the prior art.

With the foregoing in view, this invention relates to a support assembly for supporting a person when moving about on an elevated part of a structure, said support assembly including:

20 a transportable guide support;
a guide that is mounted on said guide support;
a base that is capable of movement along said guide, and
a support structure that includes a first portion that is connected to said base and a second portion or handle that is spaced from said base.

For example, the elevated structure may include a roof of a railway carriage.

25 However, in another aspect this invention relates to a support assembly for supporting a person when moving about on an elevated part of a structure, said support assembly including:

30 a transportable guide support;
a guide that is mounted on said guide support;
a base that is adapted to engage said guide and which is capable of movement along said guide while remaining engaged therewith, and

a support structure that includes a first portion that is connected to said base and a second portion or handle that is spaced from said base.

For example, the structure may include an ISO container or an ISO tank having an ISO frame and a corner casting located in each corner of said frame.

5 The guide support, in addition to providing support for the guide, may be adapted to provide support for a person. For example, the guide support may also function as a platform or work surface on which a person may move about while working or such like.

10 The guide support may include a guide supporting member to which the guide is attached. Alternatively the guide support may include a plurality of guide supporting members and wherein said guide supporting members, possibly in combination with the guide, may be arranged to form a frame. Further, the frame, or selected portions thereof, may be open or closed.

15 The guide support may also include location means for locating the guide support on the structure and wherein the location means be adapted to engage a preferred portion of the structure. For example, in the case of an ISO shipping container or an ISO tank, the locating means may include one or more protrusions that are each capable of location within a respective one of the corner castings.

20 The guide support may also include attachment means for attaching the guide support to the structure and locking means associated with said attachment means for effecting engagement of the attachment means with the structure. For example, each of the protrusions referred to above may be capable of selectively engaging a portion of a corner casting and wherein the engagement of the locating means and one or more of the corner castings may, in use, inhibit movement of the support apparatus relative to the ISO container or the ISO tank.

25 In addition, the support assembly may be constructed in such a manner whereby movement of the base along the guide and/or movement of the support structure relative to the base may be possible only after the locking means has been actuated and/or remains actuated.

30 The guide support may also include transportation means for enabling the guide support to be moved from one article to another. For example, the transportation means may include one or more mountings to which lifting apparatus for lifting the guide support may be attached thereto. Alternatively the transportation means may include one or more recesses associated with the guide support, such as a pair of tubes, that are each capable of receiving at least one forklift

tine. However, it will also be appreciated that the transportation means may include a wheeled carriage.

The support assembly may also include a ladder which a person may use to gain access to the guide support when the guide support is located either on or above a structure. Further the ladder may be attached to the guide support and/or the transportation means.

The ladder may also be capable of being moved from a stored position to an operable position. For example the ladder may be foldable and/or retractable.

To assist persons to safely accesses the guide support using the ladder, the first portion of the support structure may be pivotally connected to the base and wherein there may be provided locking means for selectively locking said support structure in a desired attitude relative to said base.

In order that the invention may be more fully understood, a preferred embodiment will now be described with reference to the accompanying drawings:

Fig. 1 is a pictorial view of a support assembly that has been constructed in accordance with the present invention and which includes a ladder that is shown in a stowed position;

Fig. 2 is a pictorial view of the support assembly illustrated in figure 1 but wherein the ladder is shown in an extended position;

Fig. 3 is a pictorial view showing a part of the support assembly, including a part of the ladder in its extended position;

Fig. 4 is a pictorial view showing a part of the support assembly, including a part of the ladder in its extended position;

Fig. 5 is a schematic side view of a second support assembly that has been constructed in accordance with the present invention;

Fig. 6 is a pictorial view of a support structure, base and guide that has been constructed in accordance with the present invention and which forms part of the support assemblies shown in figures 1 to 5;

Fig. 7 is a pictorial view of the base shown in figure 6, looking from one end;

Fig. 8 is a pictorial view of the base shown in figures 6 and 7, looking from an opposite end, and

Fig. 9 is a pictorial cross-sectional view of the base.

- 5 -

Figures 1 to 4 show a support assembly 10 that may be used to provide support for a person when moving about on an elevated part of a structure, such as an ISO shipping container or an ISO tank. The support assembly 10 includes a transportable guide support 11, on which there is mounted a guide 12, and a support structure 13 that is pivotally connected to a base 14, which itself is capable of movement along the guide.

The guide support 11 includes a plurality of guide supporting members, including an elongate steel beam 15, having a first end portion 16 and an opposing second end portion 17, and four smaller structural supporting members 18 that extend outwardly from one side of said beam in a generally lateral direction. Two of the four supporting members 18 are located adjacent the first end portion 16 while the other two supporting members 18 are located adjacent the second end portion 17.

The guide support 11 further includes two steel tubular members 19 that pass through the beam 15 and which extend laterally and outwardly from the same side of said beam as the aforementioned structural members 18. The two tubular members 19 are located approximately midway along the length of the beam 15 and between left and right groupings of said structural members 18. Further, the tubular members 19 are each adapted to receive a respective tine of a forklift and the structural members 18 and the tubular members 19 are generally equally spaced along the length of the beam 15.

Each structural member 18 and tubular member 19 includes a substantially flat upper surface to which there is attached a generally rectangularly shaped platform or walkway 20. The platform 20 includes two opposing longitudinal edge portions 22 that are generally parallel to the beam 15 and which is approximately the same length as said beam. The platform 20 also has a substantially flat upper surface 21 in which there is formed a plurality of apertures.

The guide support 11 also includes four steel, plate like, feet 23 that are welded to an underside of the beam 15 and which are adapted to engage or abut against an elevated part of an ISO shipping container or an ISO tank. Further, each foot 23 is located adjacent one of the structural members 18.

The guide 12 comprises an elongate piece of tubular steel section 24 having a generally square shaped transverse cross-section. The steel section 24 is attached to and extends longitudinally along one side of the beam 15 by three connectors 25.

At each opposing end 28 of the guide 12 there is provided a stop. The stops, in use, limit the travel of the base 14 along the guide 12.

The base 14 includes a body 31 in which there is formed a longitudinally extending channel 32. The channel 32 has a square shaped transverse cross-section, and is adapted to loosely receive the steel section 24 therein.

The body 31 also includes a front end portion 33 and a rear end portion 34, each of which has three recesses 35, 36 and 37 respectively that are formed therein. Each of the recesses includes two opposing side walls 38 that are separated by a web 39.

The recesses 35, 36 and 37 are each adapted to receive a roller assembly 40, comprising a wheel 41 that is free to rotate about an axle 42 having opposing end portions 43 that are each located within a respective aperture 44 formed in a side wall 38. The wheels 41 each bear against a respective side wall 45 of the steel section 24, as shown in figure 8.

The base 14 also includes a mounting 46, including two opposing, upstanding flanges 47 located intermediate the front and rear end portions 33 and 34. The flanges 47 each include an arcuate edge portion 48 in which there is formed four semi-circular notches 49. Each of the flanges 47 also includes a mounting aperture 50 formed therein.

The support structure 13 is constructed from a tubular member that has been bent so that it resembles a walking stick, comprising a post 51, having a lower end portion 51a and a handle 51b that extends outwardly from the post 51 in a generally orthogonal direction. The lower end portion 51a is pivotally connected to the mounting 46 by a bolt 52 that extends through opposing mounting apertures 50.

The support structure is equipped with braking means 53, including a pair of opposed clamping arms 54, each comprising a pair of clamping members 54a, each having a fixed end 55 and a free end 56. Each clamping arm 54 includes a jaw 57, located adjacent the free end 56, that comprises a pair of divergent flanges 58, having an inner face 59 on which is mounted a pad 60. The jaws 57 are each adapted to grip an adjacent face of the steel section 24.

The two clamping arms 54 are connected midway between their respective ends by a coiled spring 61. The action of the spring 61, in use, is to urge the clamping arms 54 together thereby maintaining the pads 60 in contact with the steel section 24 with sufficient force that the base 15 is restrained from moving relative to the guide 12.

- 7 -

The fixed end 55 of each clamping arm 54 includes a roller assembly 62, comprising a wheel 63 that is free to rotate about an axle 64, being the shaft of a bolt 65 that pivotally connects the clamping arm 55 to a flange 66 of an "L" shaped mounting bracket 67.

5 The flange 66 includes a slotted aperture 68 through which two bolts 69 extend, said bolts being used to slideably connect a cam member 70, that resembles a wedge, thereto.

10 The lower end 71 of the cam member 70 is connected to a brake handle 72, mounted on the handle 51b, by a wire cable 73. The brake handle 72 is capable of movement between a first position, wherein the cam member is in its upper most position, and a second position, wherein the cam member is in its lower most position. The brake handle 72 is maintained in the first position by the action of a spring, not shown.

15 When the cam member 70 moves from its first position to its second position, the engagement of the cam member 70 with the two wheels 63 causes the disengagement of the jaws 57 with the steel section 24, thereby permitting movement of the base 15 along the guide 12. However, when the pressure brought to bear on the brake handle 72 by the user is released, the brake handle is automatically returned to its first position; the cam member 70 returns to its uppermost position, and the jaws 57 again engage the steel section 24 thereby resisting further movement of the base 14 relative to the guide 12.

20 The support structure 13 also includes locking means 73, including a locking pin 74 having opposed free end portions 75 that are each receivable within a respective notch 49. Further, the locking pin 74 is retained in an engaged position with the notches 49 by the action of a coiled spring 75a, having a first end 76 that is secured to the base 12 and a second end 77 that is attached to a mid portion of said locking pin.

25 The mid portion of the locking pin 74 is connected to a locking handle 78, mounted on the handle 51b, by a wire cable 79. The locking handle 78 is capable of movement between a first position, wherein the locking pin 74 is in engagement with a pair of notches 49, and a second position, wherein the locking pin 74 is no longer in engagement with said notches 49. The locking handle 78 is maintained in the first position by the action of a spring, not shown.

30 When the locking pin 74 moves from an engaged position to a disengaged position, the post 51 is free to move between a first, or generally upstanding attitude, and a second, or generally horizontal attitude, said first and second positions corresponding to notches 49a and

49d respectively. The notches 49b and 49c correspond to attitudes of inclination approximately 30 degrees and 60 degrees to the horizontal.

However, when pressure brought to bear on the locking handle 79 by the user is released, the locking handle is automatically returned to its first position and though the free ends of the locking pin 74 will continue to slide along the arcuate edges 48 with rotation of the post 51, they will automatically engage a respective notch 49 when located over same, and shall remain in engagement therewith due to the action of the spring 75a, thereby preventing further movement of the post 51 relative to the base 14.

The handle 51b includes two links 80 and 81 attached thereto.

The support assembly 10 also includes a harness 90, consisting of a belt 91 that may be secured about a user's waist, and two straps 92, each having a fixed end that is attached to the belt 91 and a free end 93 equipped with a clasp 94. In use, the clasps 94 may each be connected to a respective link 80 or 81, if so desired.

The support assembly 10 also includes attachment means 95 for attaching the guide support 11 to an ISO container or an ISO tank. The attachment means 95 includes a first twist lock 96 associated with a first end 16 of the beam 15 and a second twist lock 97 associated with the second end 17 of said beam. The twist lock 96 includes a shaft 98, that extends through aligned apertures formed in the beam 15, and a foot 98b, partially obscured, that is rigidly attached to said shaft and which depends from the underside of said beam. The shaft 98 includes an upper portion that extends above the beam 15 and a handle 99 that is attached to said upper portion.

The twist lock 97 includes a shaft 100, that extends through aligned apertures formed in the beam 15, and a foot, not shown, that is rigidly attached to said shaft and which depends from the underside of said beam. The shaft 100 includes an upper portion that extends above the beam 15 and a handle 101 that is attached to said upper portion.

The two handles 99 and 101 are interconnected by a rigid, rod like, linkage 102 having opposing end portions 103 and 104 that are pivotally connected to handles 99 and 101.

Because of the slim nature of the handle 99 which makes it difficult to see when viewed from side on, the handle 99 includes a plate like member 105, shown in dotted outline, that depends there from. This plate like member or flag 105 can be more readily seen when the handle 99 extends laterally outwardly from the beam 15, as shown in figure 1.

The support assembly 10 also includes a ladder assembly 110, including a ladder 111 that is mounted on the platform 20, said ladder comprising two opposing, parallel, elongate sidepieces 112 that are interconnected by a plurality of rungs 113 located there between.

The sidepieces 112 each include an outwardly directed, "C" shaped, channel that extends along much of the length of same and which includes two opposing side flanges 112a that define an opening.

The platform 20 includes two opposing ladder mountings 150, each comprising a plate like arm member 151 that is pivotally connected to an adjacent mounting bracket 152 or 152a by a bolt 153, said mounting brackets 152 and 152a being attached to one of the structural members 18. Each arm member 151 includes two rollers 154 that are free to rotate about an axle 155 that extends outwardly from the arm member 151, said rollers 154 being adapted to engage an inner face of one of the side flanges 112a, and two rollers 156 that are free to rotate about an axle 157 that extends outwardly from said arm member 151, said rollers 156 being adapted to engage an inner face of an opposing side flange 112a.

The ladder 111 also includes two rollers 114, each being rotatably mounted to an upper end portion 115 of a respective sidepiece. The rollers 114 each include a cylindrically shaped body, that is adapted to make rolling contact with the upper surface 21 of the platform 20, and an outwardly extending circumferential flange that in use may abut or engage a respective edge portion 22. The rollers 114 provide support for the ladder 111 when it rests on the platform 20.

The ladder 111 is capable of movement between a stowed position, as shown in figure 1, and an extended or climbing position, as shown in figure 2, the ladder 111 being free to pivot about an axis containing the bolts 153.

The ladder assembly 110 is provided with a ladder retracting system that is adapted to assist a user to return the ladder 111 to the ladder's stowed position. The ladder retracting system includes an anchor 120 that is attached to a lower end portion of the sidepiece 112, that is located nearest to the beam 15, and two guide rollers 121 and 122 that are rotatably mounted on opposite ends of the platform 20. Further, each of the guide rollers includes a circumferential groove formed therein.

The ladder retracting system also includes an elastic member 123, such as a bungee cord, having a first end that is attached to the anchor 120 and a second or opposing end that is attached

to the platform adjacent the guide roller 121 and wherein the bungee cord passes over both guide rollers.

To prevent the upper end of the ladder 111 from moving upwardly away from the platform 20 when the ladder is in a stowed position there is provided a hook like fixture 125 that is attached to a longitudinal side edge of the platform 20 and which overlies one of the sidepieces 112, as shown.

The support assembly 10 also includes an inverted "L" shaped catch 126 that is attached to the handle 99 and wherein the catch 26 includes a free end portion 127 which overlies the post 51 when the twist locks are in a position other than that which corresponds to the "engaged" position, namely the position of the twist locks when they each fully engage a respective corner casting.

In use, a forklift truck may be used to place the support assembly 10 on top of an ISO container or an ISO tank and wherein each of the forklift's tines may be located within a respective one of the tubular members 19.

The support assembly may be placed in an operative position on top of the ISO container or the ISO tank by the location of a foot of each twist lock 96 and 97 in a respective corner casting located along one side of said container or said tank. Further, in order that each foot may locate within a corner casting, the handles 99 and 101 will both be in their inoperative positions as also indicated by the flag 105 which will be extending outwardly from the beam 15 generally at a right angle.

Having correctly positioned the support assembly 10 on top of the container or tank, the support assembly 10 may be secured thereto by rotating handle 99 through an angle of approximately 90 degrees. This will have the effect of rotating the foot that is attached to handle 99 thereby preventing its removal from the corner casting in which it is located. Further, because handle 99 is connected to handle 101 by linkage 102, rotation of handle 99 will cause a similar rotation of handle 101, which in turn will cause the foot that is attached to handle 101 to rotate within the corner casting in which it is located thereby preventing the removal of the foot.

The operative engagement of the twist locks 96 and 97 with the respective corner castings will be evident by the change in the position of the flag 105 that is now generally parallel to the beam 15.

- 11 -

Further, the rotation of the handle 99 will also have the effect of rotating the "L" shaped catch 126 through an angle of 90 degrees whereby the free end portion 127 will no longer overlies the post 51 thereby preventing the raising of same relative to the beam 15.

5 A person wishing to gain access to a roof or upper part of the container or tank may choose to use the ladder 111. This may be achieved by grasping hold of the bottom rung 130 of the ladder 111, which is in its stowed position, and pulling it generally outwardly and downwardly such that the ladder initially slides over the platform 20 then pivots about an axis containing the bolts 153. Further, because pulling the ladder out stretches the bungee cord 123, it is believed that the resistive forces of the bungee cord will help take some of the weight of the
10 ladder thereby making it easier for persons to position the ladder in an operative position.

With the ladder 111 in its operative position, the person may then begin to climb up the ladder 111. When the person is near the top of the ladder 111, he or she may grasp the adjacent handle 51b for support, said handle extending outwardly from an end of the container or tank and wherein preferably the base 14 abuts the stop nearest said end.

15 Preferably the person is wearing the harness 90 about their waist. When the person is near the top of the ladder 111, the person may secure at least one of the clasps 94 to one of the links 80 or 81. Consequently, should the person slip or lose their balance while climbing over the upper end of the ladder and on to the platform 20, they will not fall to the ground.

Before placing his or her feet on the upper most rungs of the ladder 111, the person can,
20 by pulling on the locking handle 79, disengage the locking pin 74 and the notches 49d, raise the handle 51b, which itself can be locked in place by releasing the locking handle such that the locking pin engages notches 49b or 49c. By repositioning the handle 51b, which is now higher and is located over and/or closer to the platform 20, it is believed that the person will find it easier to climb on to the platform.

25 Once standing on the platform 20, the person may, by pulling on the locking handle 79, disengage the locking pin 74 and the notches 49b or 49c, move the post 51 such that it now stands upright, which itself can be locked in place by releasing the locking handle such that the locking pin engages notches 49a.

30 In order then to move the support structure 13 along the guide 12 while holding on to the handle 51b for support, the person must pull on the brake handle 72 so as to disengage the jaws 57 and the guide 12. Similarly, in order to prevent further movement of the support structure 13

along the guide 12 the person need only release their grip on the brake handle 72 there permitting the jaws 57 to engage the guide 12.

When ascending from the platform 20, engagement of the base 14 with the stop closest to the ladder 111 will prevent the person, who may be walking backwards, from stepping off the platform 20. Further, when the base 12 abuts against the stop nearest the ladder 111, the support structure 13 is located in the preferred position to enable the person to climb down from the platform 20 while using the support structure 13 for support, much like the person did when climbing on to the platform. When climbing down from the platform 20 using the ladder 111, the procedure just described may be followed in reverse.

Figure 5 shows a railway carriage 206 that includes a box like structure 207 that is mounted on a wheeled carriage assembly having wheels 208. The box like structure 207 includes a roof 209.

Figure 5 also shows a support assembly 210 that is located beside the railway carriage 206 and which is adapted to provide a safe working environment for persons who are required to perform work on or in close proximity to the roof 209 of the railway carriage.

The support assembly 210 includes a guide support 211 that resembles a platform and which is capable of providing support for a person while moving about on same. The guide support 211 includes a frame that is covered with suitable cladding.

The guide support 211 is attached to transportation means 220 that may be used to transport the guide support 211 from one railway carriage to another railway carriage. The transportation means 220 includes a wheeled base 221 and a frame assembly 222 that extends upwardly from said base and which provides support for the guide support 211. In this particular embodiment the guide support 211 is pivotally attached to the supporting frame assembly and is capable of movement between a first position wherein the guide support has a vertical orientation, and a second or operative position, wherein the guide support has a horizontal orientation. However, it will be appreciated that in other embodiments the guide support may be designed so that it may be detached from the transportation means.

The transportation means 220 also includes a ladder 223 that may be used to gain access to the guide support 211.

- 13 -

The support assembly 210, like the support assembly 10 includes a guide 12, that is mounted on the guide support 211, and a support structure 13 that is pivotally connected to a base 14, which itself is capable of movement along the guide 12.

5 The guide 12 of the support assembly 210, like the support assembly 10, comprises an elongate piece of tubular steel section 24 having a generally square shaped transverse cross-section. At each opposing end 228 of the guide 12 there is provided a stop. The stops, in use, limit the travel of the base 14 along the guide 12.

10 The support assembly 210 also includes attachment means 295 for attaching the transportation means to the railway carriage, including two retractable cables 296, each having a free end portion 297 to which there is attached a hook 298 that is adapted to engage a portion of the railway carriage. Further, in order to prevent parts of the transportation means from rubbing against an adjacent side of the railway carriage, the transportation means includes two buffers 299, each consisting of a large block of rubber, that are attached to a respective frame member of the transportation means and which in use shall abut against the side of the railway carriage.

15 The attachment means 295 also includes retractable members 301 and 302 which, when extended, may be positioned underneath the railway carriage and which in use shall prevent the support assembly 210 from tipping over.

20 In use, the support assembly 210 may be wheeled in to position beside a railway carriage 206 and wherein the hooks 298 may be attached to selected portions of said carriage 206 so as to restrict any movement of the support assembly 210 relative thereto.

A person wishing to gain access to the roof 209 of the railway carriage 206 may choose to climb the ladder 223. When the person is near the top of the ladder 223, he or she may grasp the adjacent handle 251b for support, said handle extending outwardly from both a side of the carriage and the guide support 211.

25 Preferably the person is wearing the harness 90 about their waist. When the person is near the top of the ladder 223, the person may secure at least one of the clasps 94 to one of the links 80 or 81. Consequently, should the person slip or lose their balance while climbing over the upper end of the ladder 223 and on to the guide support 211, they will not fall to the ground.

30 Before placing his or her feet on the upper most rungs of the ladder 223, the person can, by pulling on the locking handle 79, disengage the locking pin 74 and the notches 49d, raise the handle 51b, which itself can be locked in place by releasing the locking handle such that the

locking pin engages notches 49b or 49c. By repositioning the handle 51b, which is now higher and is located over and/or closer to the guide support 211, it is believed that the person will find it easier to climb on to the guide support.

5 Once standing on the guide support 211, the person may, by pulling on the locking handle 79, disengage the locking pin 74 and the notches 49b or 49c, move the post 51 such that it now stands upright, (as shown in dotted outline 213a), which itself can be locked in place by releasing the locking handle such that the locking pin engages notches 49a.

10 In order then to move the support structure 13 along the guide 12 while holding on to the handle 51b for support, the person must pull on the brake handle 72 so as to disengage the jaws 57 and the guide 12. Similarly, in order to prevent further movement of the support structure 13 along the guide 12 the person need only release their grip on the brake handle 72 there by permitting the jaws 57 to engage the guide 12.

15 When ascending from the guide support 211, the support structure 13 is preferably located in the preferred position adjacent the ladder 223. This will enable the person to climb down from the guide support 211 while using the support structure 13 for support, much like the person did when climbing on to the guide support. When climbing down from the guide support 211 using the ladder 223, the procedure just described may be followed in reverse.

20 It will be appreciated that the above example is given as an illustration only of the present invention and that all such modifications thereto as would be apparent to persons skilled in the art are deemed to fall within the broad scope and ambit of this invention as herein defined in the appended claims.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

- 5 1. A support assembly for supporting a person when moving about on an elevated part of a structure, said support assembly including:
a transportable guide support;
a guide that is mounted on said guide support;
a base that is capable of movement along said guide, and
10 a support structure that includes a first portion that is connected to said base and a second portion or handle that is spaced from said base.
- 15 2. A support assembly as claimed in claim 1, wherein said base is adapted to engage said guide.
3. A support assembly as claimed in any one of the preceding claims, wherein said support assembly includes attachment means for releasably securing said support assembly to the structure.
- 20 4. A support assembly as claimed in any one of the preceding claims, wherein the structure is an ISO container or an ISO tank that comprises an ISO frame and a corner casting located in each corner of the frame and wherein said guide support includes one or more protrusions that are each capable of location within a respective one of the corner castings.
- 25 5. A support assembly as claimed in any one of claims 1 to 3, wherein the structure is an ISO container or an ISO tank that comprises an ISO frame and a corner casting located in each corner of the frame and said guide support includes attachment means for releasably attaching said guide support to a corner casting and locking means associated with said attachment means for effecting
30 engagement of said attachment means with said corner casting.

- 16 -

6. A support assembly as claimed in claim 5, wherein movement of said support structure relative to said base is possible only once said attachment means has engaged the corner casting.
- 5 7. A support assembly as claimed in any one of the preceding claims, wherein there is provided a ladder that depends from said guide support.
- 10 8. A support assembly as claimed in claim 7, wherein said ladder is capable of movement between a stowed position on said guide support and a second position whereby said ladder depends from said guide support and may be used to gain access to said guide support.
- 15 9. A support assembly as claimed in claim 7 or claim 8, wherein said handle of said support structure may be positioned such that it extends outwardly from said guide support and is located over said ladder and in use may assist the person to move from said ladder on to said guide support.
- 20 10. A support assembly as claimed in for supporting a person when moving about on an elevated part of a structure, said support assembly including:
a transportable guide support, and
a guide that is mounted on said guide support, said guide being capable of supporting support for a base that is adapted to engage said guide and move along said guide and wherein there is provided a support structure having a first portion that is pivotally connected to the base and a second portion or handle that is spaced from said base.
- 25 11. A support assembly substantially as hereinbefore described with reference to the accompanying drawings.
- 30

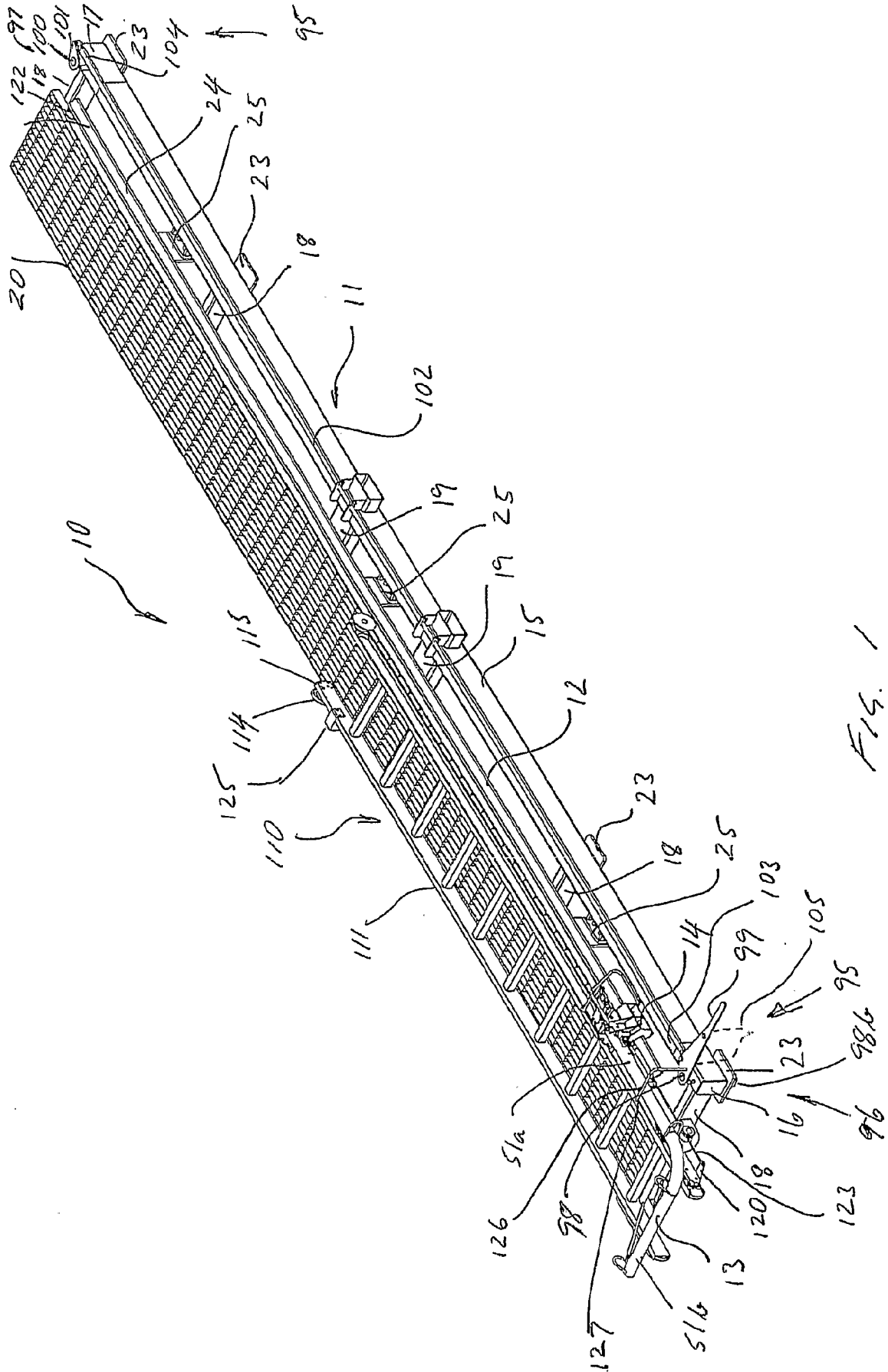


FIG. 1

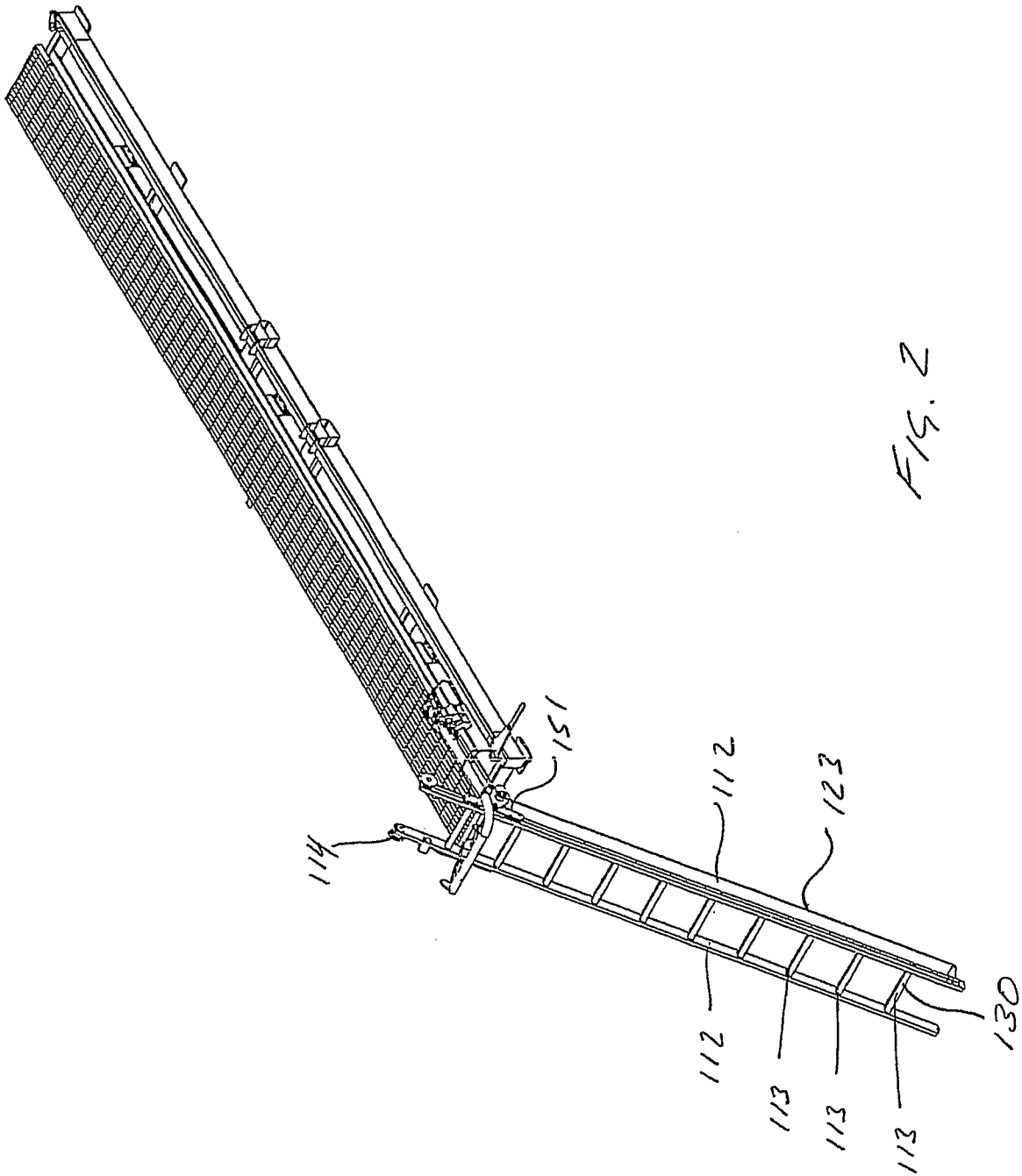


FIG. 2

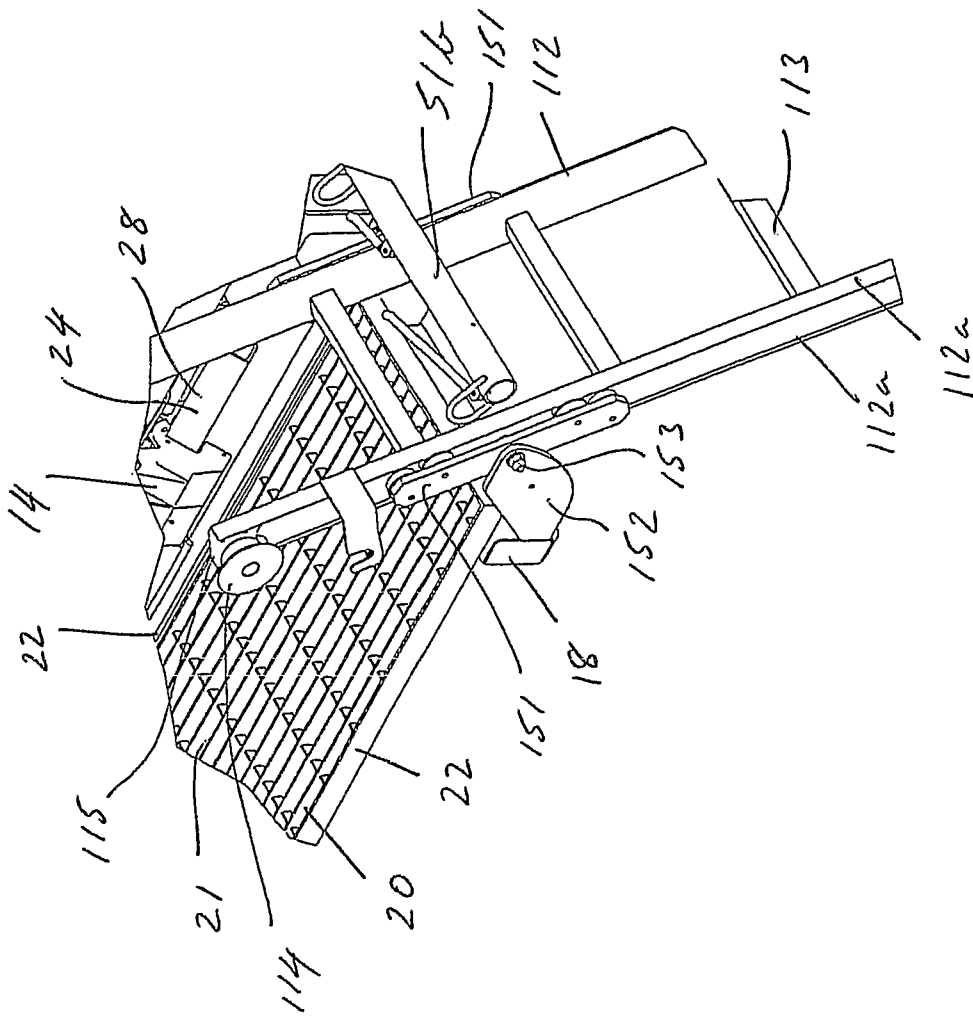


FIG. 3

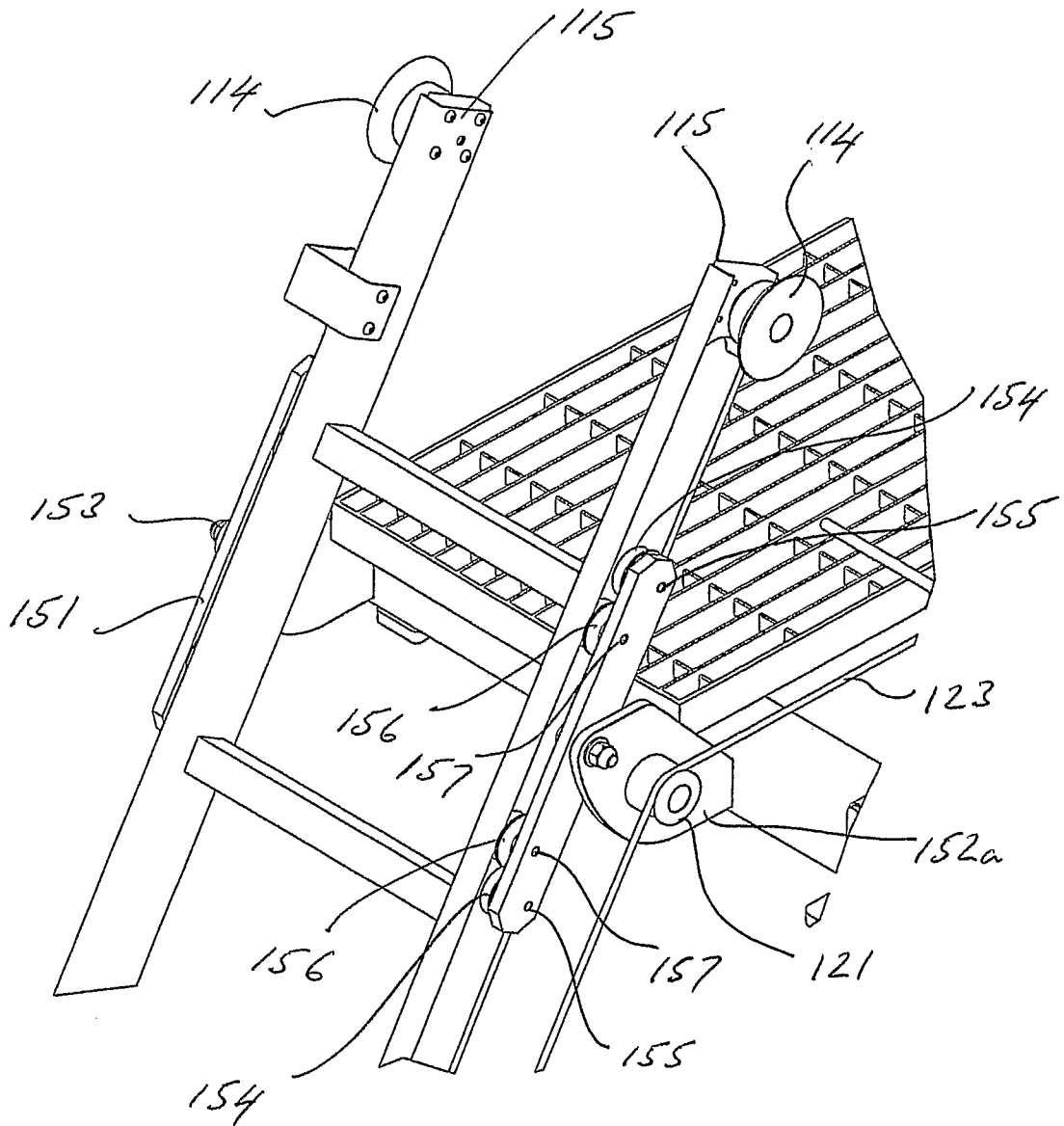
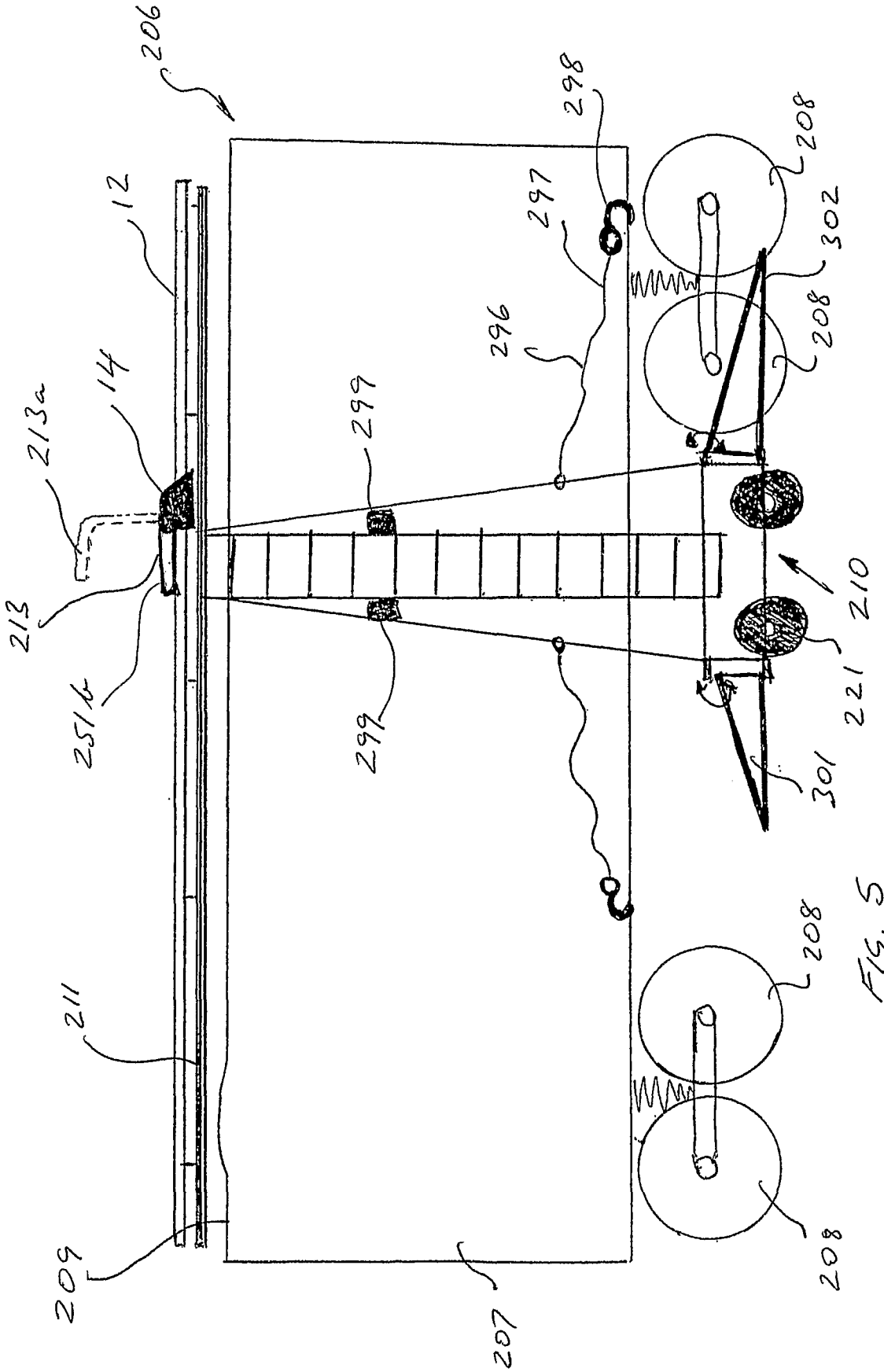


FIG. 4



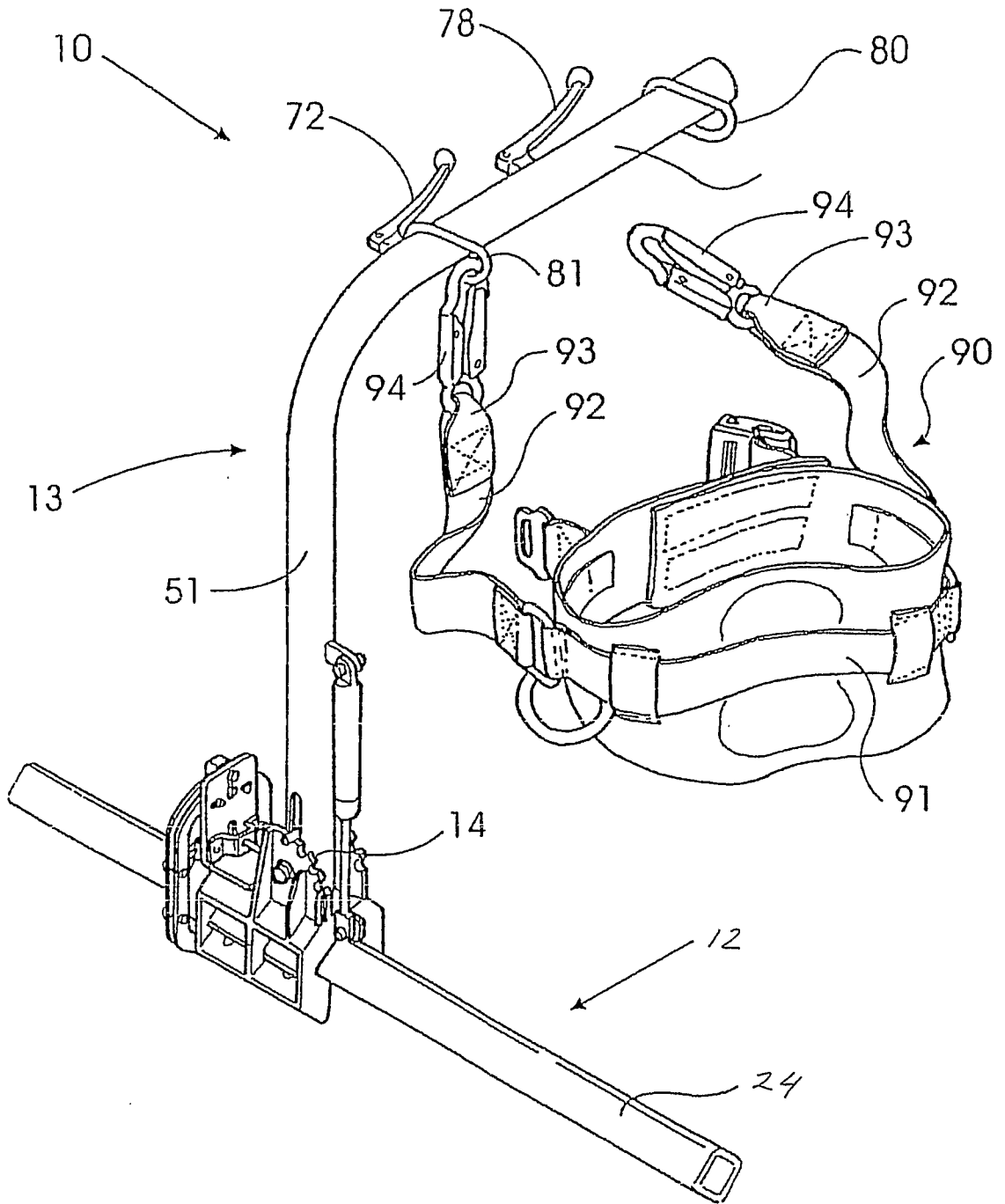
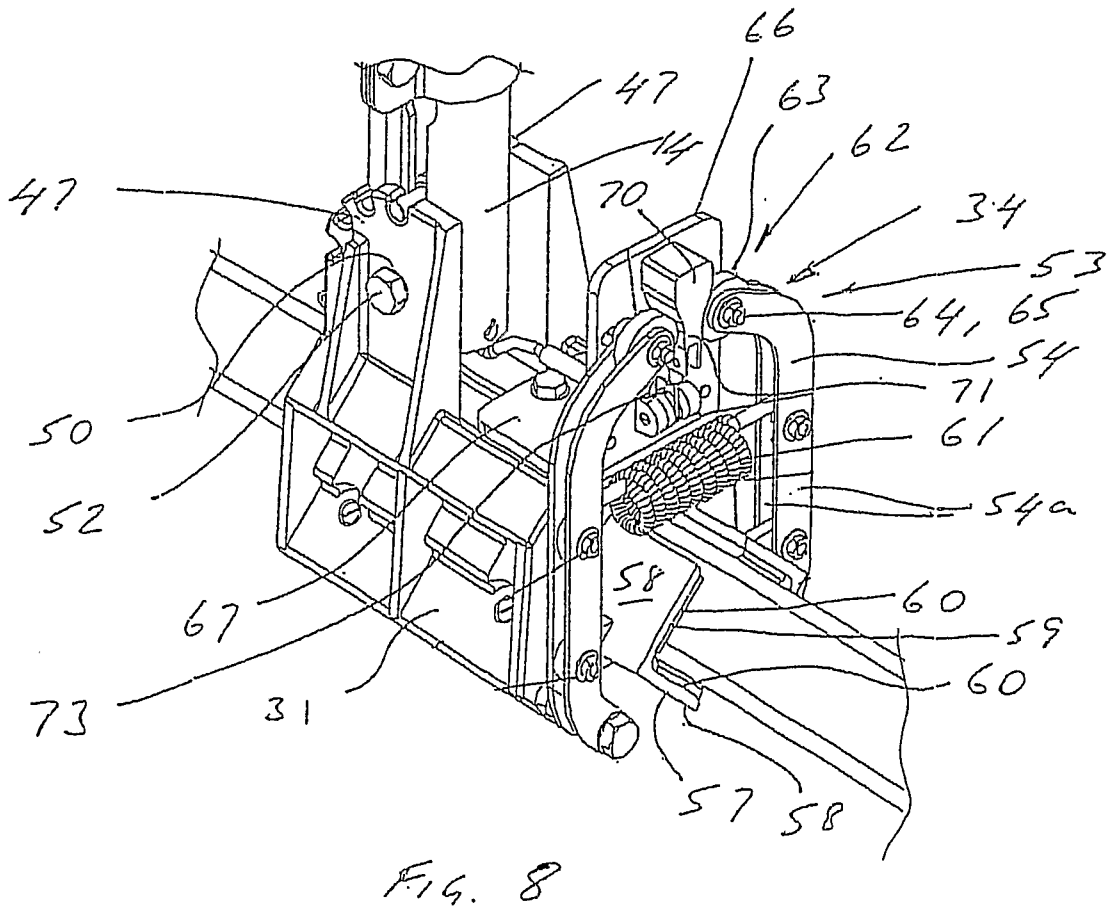
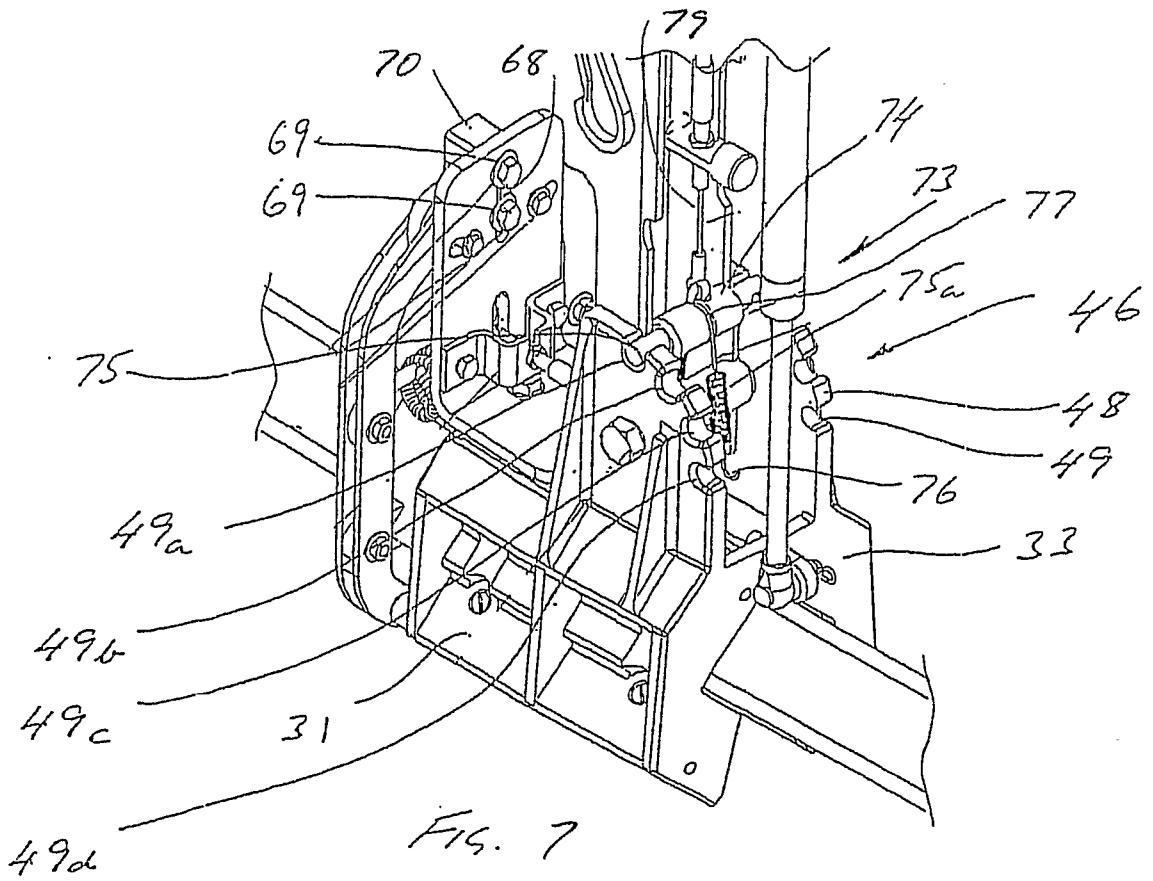


FIG. 6



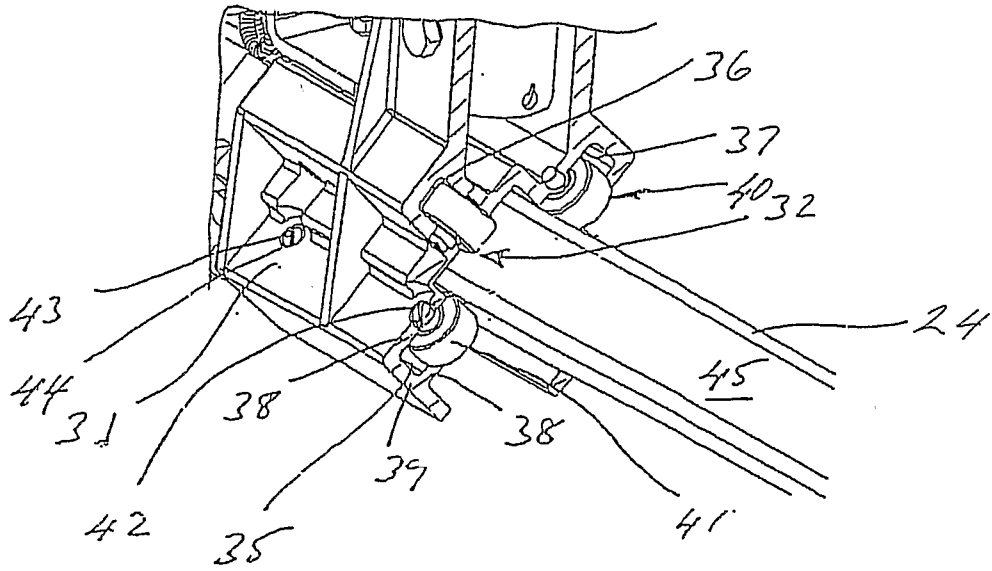


FIG. 9

INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU2006/001486

A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl.

E04G 23/00 (2006.01) *A62B 1/20* (2006.01) *E04G 3/00* (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)
DWPI + kw(E04, walkway, gang, bridge, platform, scaffold, elevat, roof, upper, top, support, safety, guide, rail, move, glide, slide, iso, container, rail, carriage, maintenance, clean etc.)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2004/033256 A1 (STANFAST ENTERPRISES PTY LTD) 22 April 2004 Whole document.	1-3,7,10
X	WO 2004/109037 A1 (BALDERO FERRANDIZ et al.) 16 December 2004 Whole document.	1-3,10
X	DE 3719403 A1 (HASSNER) 23 December 1987 Whole document.	1-3
X	US 5197257 A (NIETLING) 30 March 1993 Whole document.	1-3

 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	"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	
"E" earlier application or patent but published on or after the international filing date	"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	
"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)	"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	
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family	
"P" document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search
05 February 2007Date of mailing of the international search report
07 FEB 2007Name and mailing address of the ISA/AU
AUSTRALIAN PATENT OFFICE
PO BOX 200, WODEN ACT 2606, AUSTRALIA
E-mail address: pct@ipaaustralia.gov.au
Facsimile No. (02) 6285 3929Authorized officer
JONATHAN MILLS
Telephone No : (02) 6283 2113

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/AU2006/001486

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	2004033256	AU	2003236437	AU	2003266861	BR	0315246
		CA	2501906	EP	1558463	NZ	539960
WO	2004109037	EP	1650378				
DE	3719403						
US	5197257	CA	2096314				
<p>Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.</p> <p style="text-align: right;">END OF ANNEX</p>							