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(54) Title: A TRANSPORT ARRANGEMENT AND A CONTAINER FOR TRANSPORTING OBJECTS IN A BUILDING

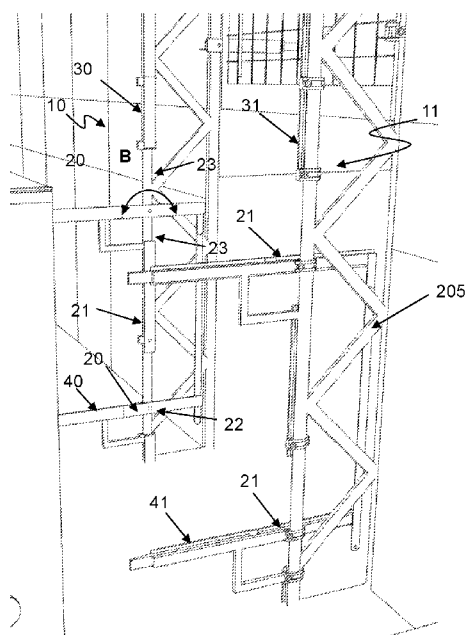


Figure 2

(57) Abstract: A transport arrangement (100) for a building (200), comprising: - a first and a second elongate transport rail (10, 11) arranged parallel with each other and comprising a respective first and second pivotal rail segment (20, 21) and a respective first and second fixed rail segment (30, 31); - a container (50) comprising a first and a second pair of rolls (60, 61; 70, 71) for guiding the container (50) along the first and second transport rail (10, 11); characterized in that the first and second pair of rolls (60, 61; 70, 71) are configured such that the first and the second pivotal rail segment (20, 21), when extending between a respective first and a second pair of rolls (60, 61; 70, 71), is pivotable between a first position (A) in which the first and the second pivotal rail segment (20, 21) is aligned with the first and second fixed rail (10, 11) segment and a second position (B) in which the first and the second pivotal rail segment (20, 21) is orthogonal to the first and second fixed rail segment (30, 31).

A transport arrangement and a container for transporting objects in a building

Technical field

The present disclosure relates to a transport arrangement for a building. The present
5 disclosure also relates to a container for a transport arrangement for a building.

Background art

In construction or renovation of a building large amounts of building material need to be transported from the ground level up to the various floors of the building. It is also
10 necessary to transport packaging- and waste material from the floors of the building down to the ground. To meet these demands, a temporary builder's lift may be erected along the façade of the building. The builder's lift comprises a lift car that is guided in a vertical frame along the building and moved by a motorized winch. However, a general problem with conventional builder's lift is the limited hoisting capacity since the hoist car remains
15 idle during the time that is spent to load and unload the hoist car.

Also conventional building elevators for transporting people suffer from limited capacity since only one lift cage may be hoisted at the time in the elevator shaft.

20 Attempts have been made to increase the capacity in passenger elevators of high-rise buildings. DE 10 2014 104 458 shows an elevator system which is arranged to transport an elevator car from one elevator shaft to another elevator shaft in a building. A single vertical guide rail for the elevator car is thereby arranged in each elevator shaft whereby each guide rail comprises a segment which is pivotal towards the other guide rail.
25 However, in DE 10 2014 104 458 the elevator car hangs on the pivotal rail segment as this is pivoted 90° from vertical position to horizontal position. To facilitate this, the elevator car is pivotally attached to suspension device which engages the pivotal rail segment. The elevator car may thereby remain suspended in upright direction as the suspension device turns together with the guide rail segment.

As a consequence thereof, a problem with the elevator system of DE 10 2014 104 458 is that it is complicated and expensive to manufacture and operate.

Consequently, it is an object of the present disclosure to provide a transport arrangement
5 for a building which solves or at least mitigates at least one of the problems of the prior-art.

In particular it is an object of the present disclosure to provide a transport arrangement for a building which allows for high capacity in the transporting of goods to and from
10 floors of the building. A further object of the present disclosure is to provide a transport arrangement for a building which is easy to erect and that may be operated with a minimum of personnel.

Yet a further object of the present disclosure is to provide a container for transporting
15 objects in a transport arrangement for a building.

Yet a further object of the present disclosure is to provide a transport arrangement for transporting goods in a building.

20 Yet a further object of the present disclosure is to provide a transport arrangement for transporting persons in a building.

Yet a further object of the present disclosure is to provide a container for transporting goods in a transport arrangement for a building.

25

Yet a further object of the present disclosure is to provide a container for transporting persons in a transport arrangement for a building.

Summary of the invention

30 According to a first aspect of the present disclosure, at least one of the aforementioned objects is solved by a transport arrangement 100 for a building 200, comprising:

- a first and a second elongate transport rail 10, 11 arranged parallel with each other and having opposite elongate contact portions 12, 13 and a respective first and second pivotal rail segment 20, 21 and a respective first and second fixed rail segment 30, 31, and;
- a container 50 configured to be, at least partially, received between the first and a second elongate transport rail 10, 11 and comprising two opposite sidewalls 52, 53 and a first pair of rolls 60, 61 arranged on the first sidewall 52 and a second pair of rolls 70, 71 arranged on the second sidewall 53, wherein;
 - the rolls of the first and second pair of rolls 60, 61; 70, 71 are spaced apart such that the first and second elongate transport rails 10, 11 may be received between a respective pair of rolls 60, 61; 70, 71 such that the rolls 60, 61; 70, 71 are in engagement with the opposite elongate contact portions 12, 13; characterized in that;
 - the first and the second pivotal rail segment 20, 21 are pivotal between a first position (A) in which the first and the second pivotal rail segment 20, 21 are aligned with the first and second fixed rail segment 30, 31 to a second position (B) in which the first and the second pivotal rail segment 20, 21 are orthogonal to the first and second fixed rail segment 30, 31, and;
 - the first and the second pair of rolls 60, 61; 70, 71 are arranged such that the first and the second pivotal rail segment 20, 21, when in one of positions (A) and (B), may be received between the respective first and the second pair of rolls 60, 61; 70, 71) and that the first and the second pivotal rail segment 20, 21 may be pivoted to the other of positions (A) and (B) in which the first and the second pivotal rail segment 20, 21 is received between the respective first and second pair of rolls 60, 61; 70, 71.

By “received between a pair of rolls” is meant that the two rolls of a pair of rolls are on opposite sides of the transport rail. In detail, the rolls of a pair of rolls are arranged or positioned on opposite sides of the elongate contact portions of the transport rail. The envelope, i.e. circumferential, contact portion of the rolls may thereby be in contacting engagement with a respective elongate contact portion of the of the transport rail.

By the arrangement of pivotal transport rail segments in combination with the special configuration of the guide rolls of the container a very simple and effective transport

system for transporting objects or people in a building is achieved. In particular, it is easy to move a container into or out of the transport rail simply by opening and closing the transport rail by pivoting of the each pivotal rail segment 90°. The transport system of the present disclosure makes thereby possible to send several containers in one direction
5 along the transport rail. This increases the transport capacity considerably.

The transport arrangement may advantageously be used for transporting containers in vertical direction in a building or at the façade of building. It may also be used for transporting containers in horizontal direction in a building or to a building. It is also
10 possible to configure the transport arrangement for transporting containers in both vertical and horizontal direction in a building.

According to a second aspect the present disclosure relates to a transport arrangement configured for transporting goods in a building.
15

According to a third aspect the present disclosure relates to a transport arrangement configured for transporting persons in a building.

According to fourth aspect the present disclosure relates to a container 50 for transporting
20 objects in a transport arrangement 100 comprising parallel first and second transport rails 10, 11, comprising:

- a top wall 51 and a bottom wall 54 and opposing first and second side walls 52, 53;
- a first and a second pair of rolls 60, 61; 70, 71 for guiding the container along a first and second transport rail 10, 11 of a transport system, wherein the first pair of rolls 60,
25 61 is arranged on the first side wall 52 of the container 50 and the second pair of rolls 70, 71 is arranged on the second side wall 53 of the container 50, characterized in that the rolls of each pair of rolls 60, 61; 70, 71 are spaced apart along a vertical axis Y) extending between the rolls of said pair of rolls and along a horizontal axis X) extending between the rolls of said pair of rolls.

According to a fifth aspect of the present disclosure, the container is configured for transporting goods.

According to a sixth aspect of the present disclosure, the container is configured for
5 transporting persons.

According to a seventh aspect, the present disclosure relates to use of a transport arrangement for transporting goods in a building.

10 According to an eighth aspect, the present disclosure relates to use of a transport arrangement for transporting persons according to the present disclosure in a building.

According to a ninth aspect, the present disclosure relates to use of a container according to the present disclosure for transporting goods in a transport arrangement according to
15 the present disclosure.

According to a tenth aspect, the present disclosure relates to use of a container according to the present disclosure for transporting persons in a transport arrangement according to the present disclosure.

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According to a further aspect the present disclosure relates to a transport arrangement 100 for a building 200, comprising:

- a first and a second elongate transport rail 10, 11 arranged parallel with each other and comprising a respective first and second pivotal rail segment 20, 21 and a respective first
25 and second fixed rail segment 30, 31;

- a container 50 comprising a first and a second pair of rolls 60, 61; 70, 71 for guiding the container 50 along the first and second transport rail 10, 11;

characterized in that the first and second pair of rolls 60, 61; 70, 71 are configured such that the first and the second pivotal rail segment 20, 21, when extending between a
30 respective first and a second pair of rolls 60, 61; 70, 71, is pivotable between a first position (A) in which the first and the second pivotal rail segment 20, 21 is aligned with

the first and second fixed rail 10, 11 segment to a second position (B) in which the first and the second pivotal rail segment 20, 21 is orthogonal to the first and second fixed rail segment 30, 31.

- 5 Further alternatives and embodiments of the present disclosure are disclosed in the dependent claims and the following detailed description.

Brief description of the drawings

Figure 1: A schematic drawing of a transport arrangement according to an embodiment
10 of the present disclosure.

Figure 2 and 3: Schematic drawings of the transport arrangement according to the present disclosure showing the pivotal rail segments in a first and a second position.

Figure 4a, 4b, 4c: Schematic drawings of a container according to the present disclosure.

Figure 6 and 7: Schematic drawings of the transport arrangement according to the present
15 disclosure showing a container entering the transport rail.

Figure 8: A schematic drawing showing a container during transport in the transport arrangement according to the present disclosure.

Figure 9 and 10: Schematic drawings of the transport arrangement according to the present disclosure showing a container exiting the transport rail.

20 Figure 11: A schematic drawing showing a layout of the transport arrangement according to the present disclosure according to a second embodiment embodiment.

Detailed description of embodiments

The transport arrangement for a building according to the present disclosure will now be
25 described more fully hereinafter. The transport arrangement for a building according to the present disclosure may however be embodied in many different forms and should not be construed as limited to the embodiments set forth herein. Rather, these embodiments are provided by way of example so that this disclosure will be thorough and complete, and will fully convey the scope of the present disclosure to those persons skilled in the
30 art. Same reference numbers refer to same elements throughout the description.

Figure 1 shows an overview of the transport arrangement 100 for a building according to the present disclosure, hereinafter denominated “the transport arrangement 100”.

The transport arrangement 100 comprises a first transport rail 10 and a second transport rail 11 which are arranged on the façade of a building 200 that is, parallel with the facade of the building. The first and the second transport rails are thereby elongate, straight elements which extend vertically along the façade of the building. The first and second transport rails 10, 11 are arranged parallel with each other and are spaced apart by a suitable distance such that a transport container 50 fit between the first and second transport rail. The first and second transport rails 10, 11 may be of any suitable design. For example, the transport rails may be of rectangular cross-section, round cross-section or have a profiled cross-section. The transport arrangement 100 further comprises a container 50 which is arranged to be moved along the first and second transport rail 10, 11. The container 50 may be configured to hold objects, for example goods such as building material or passengers, i.e. persons.

Each of the first and second transport rails 10, 11 have opposing elongated first and second contact portions 12, 13 which extend along substantially the entire transport rails. The elongated contact portions 12, 13, are continuous portions or surfaces of the transport rails which are configured to be received between a pair of spaced apart rolls on the container and thereby come into contacting engagement with the envelope surfaces of the rolls. The contact portions 12, 13 are schematically indicated in figure 1, and described more in detail under figure 2 and 4c.

The transport arrangement 100 also comprises a hoisting crane 220 which is configured to raise or lower the container by a winch wire 225. The hoisting crane 220 is positioned on the roof of the building, between the first and the second transport rails 10, 11. The transport arrangement 100 further comprises a lifting jig 210 which is configured to engage and connect with the container 50, e.g. by mating profiles arranged on the lifting jig and on the top wall of the container. The winch wire 225 of the crane 220 is attached to the lifting jig 210 such that the crane 220 may raise and lower the lifting jig 210 and

thereby also container 50 along the first and the second transport rail 10, 11. However, the winch wire 225 may also be directly attached to the container, for example by a hook. Figure 1 further show a lorry 240 from which a plurality of containers 50 are unloaded to a loading platform 250 at the base of the transport rails 10, 11.

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Figure 2 shows a lowermost section of the first and second transport rails 10, 11 in the area of the loading platform 250. The first and the second transport rails 10, 11 comprises respectively at least one fixed rail segment 30, 31 that extend vertically along the façade of the building. The fixed rail segments 30, 31 may be firmly affixed to a support structure 205 which in turn is attached to the façade of the building 200. The support structure 205 thereby provides a predetermined space between the façade and the first and the second transport rails 10, 11. The longitudinal extension of the support structure 205 thereby corresponds to the longitudinal extension of the first and that second transport rail. The support structure 205 may be a framework. Alternatively, the first and second transport rails 10, 11 may be directly fixed to the façade.

The first and second transport rails 10, 11 further comprise respectively at least one pivotal rail segment 20, 21. The pivotal rail segments 20, 21 are elongate and have a predetermined length, width and height. Each of the pivotally rail segments 20, 21 is pivotally arranged with respect to the fixed rail segments 30, 31 around a pivot position 22. The pivotally rail segments 20, 21 may thereby be pivotally attached by e.g. a pivot shaft 22 to the support structure 105. Each of the pivotal rail segments 20, 21 are thereby pivotal, i.e. pivotally arranged, between a first position A in which the pivotal rail segment 20, 21 is aligned with the fixed rail segment 30 and a second position B in which the pivotal rail segment 20, 21 is orthogonal with the fixed rail segment 30, 31. Figure 2 shows the pivotally rail segments 20, 21 in the second position B and figure 3 shows the pivotally rail segments 20, 21 in the first position A.

By “orthogonal to” is meant that that the pivotal rail segments 20, 21 forms an angle of 90° with the fixed rail segments 30, 31. It is appreciated the specific direction of pivoting of the pivotal rail segment depends on the configuration of the transport arrangement 100.

However, it is appreciated that pivotal rail segment 20, 21 is arranged, or oriented such that it allows a container 50 to enter and be positioned between the first and the second transport rails 10, 11. That is, when the transport rails are arranged parallel with the façade of the building the pivotal rail segments pivot in direction away from the façade of the building.

By “aligned with” is meant that the pivotal rail segment 20, 21 and the fixed rail segment 30, 31 extend along the same straight axis. The pivotal rail segment 20, 21 and the fixed rail segment 30, 31 thereby form one continuous element.

Figure 2 further shows a first and second guide rail section 40, 41 which extend orthogonally from respective first and second transport rail 10, 11. The first and the second guide rail sections 40, 41 are firmly affixed such that they are permanently oriented orthogonally to the fixed rail segment 30, 31. The first and the second guide rail section 40, 41 may thereby be firmly attached to the support structure 205. The first and second guide rail sections 40, 41 are arranged such that the pivotal rail segments 20, 21, when pivoted in position B, are aligned with the first and second guide rail section 40, 41. The pivotal rail segments 20, 21 and the guide rail sections 40, 41 thereby form a continuous guide which considerably facilitates movement of a container into and out of transport arrangement 100.

The first and the second pivotal rail segment 20, 21 are further configured such that, when the first and the second pivotal rail segment 20, 21 are in the second position (B), at least one spacing 23 is formed between the first and the second pivotal rail segment 20, 21 and the first and the second fixed rail segment 30, 31. The spacing 23 is an opening in the transport rails 10, 11 and is dimensioned to allow at least one roll of the pair of rolls on the sidewalls of the container 50 to pass from one side of the transport rails 10, 11 to the other side thereof. This makes possible to move the container, by e.g. pushing, from a position outside the transport rails 10, 11 to a position between the transport rails. When the container is in the position between the transport rails 10, 11 one roll, in a pair of rolls, is on one side of the longitudinal extension of the transport rail and the other roll is on the

other side. The height of spacing 23, i.e. the distance between fixed rail segment and the pivotal rail segment in orthogonal position B is greater than the diameter of the rolls 60, 61, 70, 71 in order to allow the rolls to pass through the spacing. To form the spacing 23, the first and second pivotal rail segment 20, 21 have a predetermined length and a first and a second end. The pivotal rail segment 20, 21 is pivotally arranged around a predetermined pivot position 22 between the first and the second end of the pivotal rail segment. By selecting a suitable position of the pivot position 22, a spacing 23 of predetermined height is achieved when the pivotal rail segment is in position (B). It may be noted that in the embodiment shown in figure 2, there are several fixed and pivotal rail segments in each transport rail 10, 11. For example, a first and a second fixed rail segment arranged opposite sides of at least one pivotal rail segment. Therefore, , when the pivotal rail segment is in position B, a first and a second spacing 23 is formed on opposite sides of one orthogonal pivotal rail segment 23 and the first and the second (upper and lower) fixed rail segments 30. The first and the second spacings allows a pair of rolls to pass through the spacings 23 from one side of the transport rail to the other.

The transport rails 10, 11 may comprise any number of first and second fixed rail segments 30, 31 and any number of first and second pivotal rail segment 20, 21. Typically, the number of first and second pivotal rail segments 20, 21 is determined by the number of entrance and exit positions for the container 50. For example, at least a first and second pivotal rail segment 20, 21 is provided at each floor of the building. Since the pivotal rail sections 20, 21 are provided to engage with rolls on the container it may be advantageous to provide several sets of first and second pivotal rail sections 20, 21 at each entrance and exit positions for the container 50. For example, in figure 2 two sets of first and second pivotal rail segments 20, 21 are provided at the base floor of the building. As will be shown hereinafter two sets of first and second pivotal rail segments 20, 21 are needed when the container comprises four pair of rolls.

Figure 2 further shows the first and second elongated contact portions 12, 13 of the transport rails 10, 11. The first and second elongated contact portions 12, 13 are directed in opposite directions. That is, the first contact surfaces 12 of both transport rails 10, 11

are directed in first direction, i.e. away from the façade of the building. The second contact surfaces of both transport rails 10, 11 are directed in a second direction which is opposite to the first direction, i.e. towards the façade of the building.

- 5 Figure 4a shows a detailed perspective view of a container 50 which is configured to be transported in the transport arrangement 100 according to the present disclosure. The container 50 comprises a top wall 51, two opposing sidewalls 52, 53 and a bottom wall 54. The container 50 may also comprise a rear wall 55 and a front door (not shown). Each of the two opposing sidewalls 52, 53 is provided with at least one pair of two guide rolls.
- 10 In figure 4a, the sidewall 52 is provided with two pairs of rolls 70, 71 and 90, 91. The opposing sidewall 53 is provided with two identical pair of rolls 60, 61 and 80, 81 (not shown). Two pairs of rolls on each sidewall of the container stabilize the container during movement by contacting engagement with the contact portions 12, 13 of the transport rails 10. This ensures safe and smooth movement of the container along the transport
- 15 rails.

- The rolls of each pair are configured to engage with the first and second transport rails 10, 20 such that the container may be guided along the first and second transport rails 10, 20. Each guide roll is thereby rotationally attached to the container, e.g. by bearings or to
- 20 a journaled shaft of the container (not shown). The bottom wall 54 of the container may be provided with wheels 57 such that the container may be pushed on a floor. The bottom wall 54 may also, or alternatively, comprise tracks 56 which are configured to receive lifting forks of a lift-truck (not shown).

- 25 According to the present disclosure, the rolls of each pair of rolls on the container are configured such that the pivotal rail segments 20, 21, when extending between the two rolls of a pair of rolls, may be pivoted between the position A, in which the pivotal rail segment is aligned with a fixed rail segment 30, 31 and the position B, in which the pivotal rail segment is orthogonal with the fixed rail segment 30, 31. In both position A and B
- 30 the pivotal rail segment extends between a pair of spaced apart rolls.

The rolls of each pair of rolls on the container are thereby spaced apart in vertical direction and in horizontal direction on the opposing sidewalls 52, 53 of the container. Figure 4b shows a front view of the sidewall 52 of figure 4a. It is appreciated that the axes and distances shown in figure 4b for illustrative purpose are shown with reference only to rolls 70, 71 and 90, 91. However, all pair of rolls have the same configuration. Figure 4b shows a vertical axis Y which extends between the rolls 90, 91. The vertical axis extends along the sidewall 52, in direction from the bottom wall 54 of the container in direction of the top wall 51. Figure 4b further shows a horizontal axis X which extends orthogonal to the vertical axis Y and between the rolls 90, 91. That is, horizontal axis X extends along the sidewall 52 parallel with the bottom wall 54. The pair of rolls 90, 91 are arranged such that the rolls 90, 91 are arranged on opposite sides of the vertical axis Y and on opposite sides of the horizontal axis X. The rolls of each pair are thereby spaced apart by the same distance both along the vertical axis Y and along the horizontal axis X. This is illustrated with reference to rolls 70 and 71 in figure 4b. Thus, in a pair of rolls 70, 71 the distance d between a first vertical axis y_1 which tangents the envelope contact portion of the first roll 70 and a second vertical axis y_2 which tangents the envelope contact portion of the second roll 71 is equal to the distance d between a first horizontal axis x_1 which tangents the envelope contact portion of the first roll 70 and a second horizontal axis x_2 which tangents the envelope contact portion of the second roll 71.

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In other words, the rolls of each pair of rolls are spaced apart and oriented diagonally on opposite sides of a first horizontal axis X and a second vertical axis Y.

Since the rolls of each pair are configured to engage with the pivotal rail segment 20, 21 the rolls are arranged such that distance d between the rolls corresponds to the dimensions of the pivotal rail segment 20, 21. That is, the distance between the first and the second elongate contact portion 12, 13 of the transport rails 10, 11. The distance d between the rolls may thereby be equal to the height of the pivotal rail segment 20, 21 in order to ensure a smooth transport of the container along the transport rail. It is also possible to arrange the rolls such that the distance d is equal to the dimensions of the pivotal rail segment 20, 21 plus a pre-determined play of e.g. 2 – 5%. This reduces the necessary

accuracy in the construction of the transport arrangement, and reduces thereby the construction time thereof. It is appreciated that all the rail segments and rail sections of the first and second transport rails have the same height to ensure smooth movement of the container.

5

The configuration of the rolls in each pair may also be mirror-inverted, as indicated by the two dashed circles in the lower pair of rolls of figure 4b.

Figure 4c is a partial front view of the container of figure 4a showing the uppermost pair
10 of cylindrical rolls 60, 61 and section of a transport rail 10 (i.e. the pivotal rail segment).

The transport rail 10 comprises a first and a second elongated contact portion 12, 13 which are directed in opposite directions, in this embodiment the contact portions 12, 13 are elongated flanges. The rolls 60, 61 comprises, each, an envelope contact portion 3 which
15 extends 360° around the cylindrical outer surface of each roll. In the shown embodiment, the envelope contact portion is a circumferential track 3 between two flanges 1, 2. As further shown, the transport rail 10 is received between the rolls 60, 61 such that the envelope contact portion 3 of one roll 60 is in engagement with the first elongated contact portion 12 of the transport rail 10 and the envelope contact portion 3 of the other roll 61
20 is in engagement with the second elongated contact portion 13.

The width w of the first and a second elongated contact portion 12, 13 of the transport rail and the envelope contact portion 3 are equal such that the first and a second elongated contact portion 12, 13 may enter into the track 3 between the circumferential flanges 1
25 and 2 of the rolls. This ensures that the container is securely locked between the first and second transport rails and prevented from undesired sideways movement. Thereby smooth and secure movement of the container along the transport rails is ensured. As described, the distance d between the envelope contact portion_3 of the first and second rolls is equal to the height h of the transport rail such that the rolls and transport rail are
30 in full contact and engagement with each other.

It is appreciated that the first and the second elongated contact portion 12, 13 and the envelope contact portion 3 may have other configuration. For example, the rolls may be cylindrical rolls with a plain circumferential cylindrical surface. The envelope contact portion 3 may thereby be formed by circumferential cylindrical surface. The transport rail
5 may have rectangular cross-section. The first and the second elongated contact portion 12, 13 may thereby be formed by opposing sides of the rectangular cross-section.

The container may further be collapsible. The container is thereby provided for example provided with hinges (not shown) in the joints between the top wall, the sidewalls and the
10 bottom wall. Collapsible containers are advantageous since several containers, when emptied and collapsed may be placed in one container and transported out of the transport arrangement at the same time.

The container 50 may be configured, such as dimensioned, for transporting goods. Non-
15 limiting examples of goods are building material, machines, appliances, boxes, parcels and furniture. The container may further be configured, such as dimensioned, for transporting persons, i.e. humans. In that case the container may be provided with seats or handles.

20 Movement of the container 50 along the transport rail 10, 11 will hereinafter be described with reference to figures 6 to 10.

Figure 6 shows the container 50 in a situation in which the container has been moved along the orthogonal guide formed by the guide rail segment 41 and the pivotal rail
25 segment 21 to a initial lifting position between the first and second transport rail 10, 11. The first and second pivotal rail segments 20, 21 are therefore pivoted into position B, such that the first and second pivotal rail segments 20, 21 are orthogonal with respect to the first and the second fixed rail segment 30, 31 (in figure 6, rail segments 20, and 30 are obscured by the container 50). The first and second pivotal rail segments 20, 21
30 thereby extend respectively orthogonally between the rolls 60, 61 of each pair of rolls on

the container. When the container 50 is in this position a lifting jig 210 (not shown) engages and connects to the top wall of the container 50.

Turning to figure 7, the pivotal rail segments 20, 21 are pivoted, between the rolls of each pair, into position A, in which the pivotal rail segment is aligned with the fixed rail segment 30, 31 such that first and second transport rails 20, 21 are continuous. The pivotal rail segment 20, 21 thereby extend vertically between the rolls 60, 61 and 80, 81. Pivoting of the rail segment is preferably made manually by an operator.

Figure 8 shows the container 50 as it is transported along the first and the second transport rails 10, 11 by the lifting jig 210 which is pulled upwards by the hoisting crane (not shown). During movement, the pair of rolls on the sidewalls 52, 53 of the container guides the container along the first and the second transport rails 10, 11.

Turning to figure 9. When the container 50 has been transported to a selected exit position, i.e. a selected floor, the lifting jig 210 stops and the pivotal rail segments 20, 21 are pivoted into orthogonal position B to allow the container 50 to exit the transport arrangement.

Figure 10 shows the container 50 being removed from the transport arrangement 50 of the present disclosure. The rolls of the container 50 thereby firstly engage the pivotal rail segment 21 and subsequently the guide rail section 40. Simultaneously, the top wall 51 of the container disengages from the lifting jig 210. Figure 10 further shows the width w of the pivotal rail segment.

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Although a particular embodiment has been disclosed in detail this has been done for purpose of illustration only, and is not intended to be limiting. In particular it is contemplated that various substitutions, alterations and modifications may be made within the scope of the appended claims.

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For example, the transport arrangement 100 of the present disclosure has here above been described with reference to an embodiment in which the transport rail 10, 11 extends in vertical direction along a façade of a building. However, it is also possible to configure the transport arrangement for horizontal transportation or for a combination of horizontal and vertical transportation.

Figure 11 is a schematic side view drawing of a transport arrangement 100 according to a second embodiment of the present disclosure. The transport arrangement 100 comprises a primary first and second transport rails 10.1, 11.1 (second transport rail 11.1 is not visible). The primary transport rail 10.1 is arranged vertically in a building 200 and comprises a primary pivotal rail segment 20.1 which is pivotal as described above between a first position A and second position B. In figure 11, the primary pivotal rail segment 20.1 is pivoted into a position B in which it is orthogonal to the primary transport rail 10.1 and aligned to a secondary transport rail 10.2 which extends in horizontal direction, e.g. along a floor in the building. The secondary transport rail 10.2 may comprise a secondary pivotal rail segment 20.2 which may be pivoted into alignment with a tertiary transport rail 10.3. The described configuration allows a container 10 to be guided long the vertical primary transport rail 10, over to the horizontal secondary transport rail 10.2 and further via the horizontal secondary transport rail 10.2 to the vertical tertiary transport rail 10.3. The vertical transport rails may be arranged in elevator shafts of high rise buildings.

The above described principle of interlinked vertical and horizontal transport rails are very advantageous for elevators for passengers in high raise buildings and may be realized by the transport arrangement of the present disclosure.

Moreover, although specific terms may be employed herein, they are used in a generic and descriptive sense only and not for purposes of limitation. Furthermore, as used herein, the terms “comprise/comprises” or “include/includes” do not exclude the presence of other elements. Finally, reference signs in the claims are provided merely as a clarifying example and should not be construed as limiting the scope of the claims in any way.

Claims

1. A transport arrangement (100) for a building (200), comprising:

- a first and a second elongate transport rail (10, 11) arranged parallel with each other and
5 having opposite elongate contact portions (12, 13) and a respective first and second pivotal rail segment (20, 21) and a respective first and second fixed rail segment (30, 31), and;
- a container (50) configured to be, at least partially, received between the first and a second elongate transport rail (10, 11) and comprising two opposite sidewalls (52, 53)
10 and a first pair of rolls (60, 61) arranged on the first sidewall (52) and a second pair of rolls (70, 71) arranged on the second sidewall (53), wherein;
- the rolls of the first and second pair of rolls (60, 61; 70, 71) are spaced apart such that the first and second elongate transport rails (10, 11) may be received between a respective pair of rolls (60, 61; 70, 71) such that the rolls (60, 61; 70, 71) are in engagement with
15 the opposite elongate contact portions (12, 13);

characterized in that;

- the first and the second pivotal rail segment (20, 21) are pivotal between a first position (A) in which the first and the second pivotal rail segment (20, 21) are aligned with the first and second fixed rail segment (30, 31) to a second position (B) in which the first and
20 the second pivotal rail segment (20, 21) are orthogonal to the first and second fixed rail segment (30, 31), and;
- the first and the second pair of rolls (60, 61; 70, 71) are arranged such that the first and the second pivotal rail segment (20, 21), when in one of positions (A) and (B), may be received between the respective first and the second pair of rolls (60, 61; 70, 71) and that
25 the first and the second pivotal rail segment (20, 21) may be pivoted to the other of positions (A) and (B) in which the first and the second pivotal rail segment (20, 21) is received between the respective first and second pair of rolls (60, 61; 70, 71).

2. The transport arrangement (100) according to claim 1, wherein the first and the second
30 elongate transport rail (10, 11), respectively, comprises a first and a second opposite longitudinal contact portion (12, 13), and each roll (60, 61, 70, 71) comprises an envelope contact portion (3) wherein, the envelope contact portions (3) of the first and second pair

of rolls (60, 61, 70, 71) are in engagement with the opposing longitudinal contact portions (12, 13) of the first and second elongate transport rail (10, 11),

3. The transport arrangement (100) according to claim 1 or 2, wherein the first and the
5 second elongate transport rail (10, 11) are arranged such that the first elongate contact portions (12) of the first and the second elongate transport rail (10, 11) extend parallel to each other and are directed in a first direction and such that the second elongate contact portions (13) of the first and the second elongate transport rail (10, 11) extend parallel to each other and are directed in a second direction which is opposite to the first direction.

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4. The transport arrangement (100) according to anyone of claims 1 - 3, wherein the first and the second pivotal rail segment (20, 21) are configured such that, when the first and the second pivotal rail segment (20, 21) are in the second position (B), at least one spacing (23) is formed between the first and the second pivotal rail segment (20, 21) and the first
15 and the second fixed rail segment (30, 31), wherein the spacing (23) is dimensioned such that one roll (60, 61, 70, 71) of a respective pair of rolls (60, 61, 70, 71) may pass through the spacing (23) in direction from one contact portion (12, 13) of the transport rail, thereby allowing the container to be moved into or out of a position between the first and the second transport rail (10, 11).

20

5. The transport arrangement (100) according to claim 4, wherein the height of spacing (23) is greater than the diameter of the rolls (60, 61, 70, 71).

6. The transport arrangement (100) according to anyone of claims 1 – 5, wherein the first
25 and second pivotal rail segment (20, 21) have a predetermined length and a first and a second end, and is pivotally arranged around a predetermined pivot position (22) between the first and the second end; wherein the pivot position (22) is selected such that ,when the pivotal rail segment is in position (B), at least a first spacing (23) is formed between the first and the second pivotal rail segment (20, 21) and the first and the second fixed
30 rail segment (30, 31);

7. The transport arrangement according to anyone of claims 1 - 6, wherein the rolls of each pair of rolls (60, 61; 70, 71) are spaced apart a distance (d) along a vertical axis (Y) extending between the rolls of the respective pair of rolls (60, 61; 70, 71) and a horizontal axis (X), extending between the rolls of the respective pair of rolls (60, 61; 70, 71).

5

8. The transport arrangement (100) according to anyone of claims 1 – 7, wherein the rolls of each pair of rolls (60, 61; 70, 71) are arranged such that the distance (d) between a first vertical axis (y_1) which tangents a first roll (60, 70) and a second vertical axis (y_2) which tangents a second roll (61, 71) is equal to the distance (d) between a first horizontal axis (x_1) which tangents a first roll 60, 70) and a second horizontal axis (x_2) which tangents a second roll (61, 71).

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9. The transport arrangement (100) according to claims 7 or 8, wherein the distance (d) between the rolls of each pair of rolls (60, 61; 70, 71) is equal to or greater than the height (h) of the transport rail (10, 11).

15

10. The transport arrangement (100) according to anyone of claims 1 – 9, wherein the envelope contact portion (3) of the rolls of each pair of rolls (60, 61; 70, 71) comprises a first and a second circumferential flange (1, 2) forming a circumferential track (3) for receiving the transport rail (10, 11).

20

11. The transport arrangement (100) according to anyone of claims 1 – 10, comprising a lifting jig (210) and a crane (220) for moving the lifting jig (210) along the first and second transport rails (10, 11), wherein the lifting jig (210) is configured to engage and hold the container (50).

25

12. The transport arrangement (100) according to anyone of claims 1 – 11, comprising a first and a second guide rail section (40, 41), which extend orthogonally from the respective first and second transport rail (10, 11), wherein the first and second pivotal rail segment (20, 21), when pivoted into orthogonal position (B), is aligned with a respective first and second guide rail section (40, 41).

30

13. The transport arrangement (100) according to anyone of claims 1 – 12, wherein the first and second transport rail (10; 11) are arranged vertically in a building (200) or at the façade of a building (200).

5

14. The transport arrangement (100) according to anyone of claims 1 – 12, wherein the first and second transport rail (10; 11) are arranged horizontally in a building (200) or extend horizontally from the façade of a building in an area outside of the building (200).

10 15. The transport arrangement (100) according to anyone of claim 1 – 14, configured for transporting goods.

16. The transporting arrangement (100) according to anyone of claims 1 – 15, configured for transporting persons.

15

17. A transport arrangement (100) for transporting goods in a building (200), comprising:
- a first and a second elongate transport rail (10, 11) arranged parallel with each other and having opposite elongate contact portions (12, 13) and a respective first and second pivotal rail segment (20, 21) and a respective first and second fixed rail segment (30, 31),
20 and;

- a container (50) configured to be, at least partially, received between the first and a second elongate transport rail (10, 11) and comprising two opposite sidewalls (52, 53) and a first pair of rolls (60, 61) arranged on the first sidewall (52) and a second pair of rolls (70, 71) arranged on the second sidewall (53), wherein;

25 - the rolls of the first and second pair of rolls (60, 61; 70, 71) are spaced apart such that the first and second elongate transport rails (10, 11) may be received between a respective pair of rolls (60, 61; 70, 71) such that the rolls (60, 61; 70, 71) are in engagement with the opposite elongate contact portions (12, 13);

characterized in that;

30 - the first and the second pivotal rail segment (20, 21) are pivotal between a first position (A) in which the first and the second pivotal rail segment (20, 21) are aligned with the

first and second fixed rail segment (30, 31) to a second position (B) in which the first and the second pivotal rail segment (20, 21) are orthogonal to the first and second fixed rail segment (30, 31), and;

- 5 - the first and the second pair of rolls (60, 61; 70, 71) are arranged such that the first and the second pivotal rail segment (20, 21), when in one of positions (A) and (B), may be received between the respective first and the second pair of rolls (60, 61; 70, 71) and that the first and the second pivotal rail segment (20, 21) may be pivoted to the other of positions (A) and (B) in which the first and the second pivotal rail segment (20, 21) is received between the respective first and second pair of rolls (60, 61; 70, 71).

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18. The transport arrangement (100) according to claim 17, wherein the first and the second elongate transport rail (10, 11), respectively, comprises a first and a second opposite longitudinal contact portion (12, 13), and each roll (60, 61, 70, 71) comprises an envelope contact portion (3) wherein, the envelope contact portions (3) of the first and second pair of rolls (60, 61, 70, 71) are in engagement with the opposing longitudinal contact portions (12, 13) of the first and second elongate transport rail (10, 11),

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19. The transport arrangement (100) according to claim 17 or 18, wherein the first and the second elongate transport rail (10, 11) are arranged such that the first elongate contact portions (12) of the first and the second elongate transport rail (10, 11) extend parallel to each other and are directed in a first direction and such that the second elongate contact portions (13) of the first and the second elongate transport rail (10, 11) extend parallel to each other and are directed in a second direction which is opposite to the first direction.

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20. The transport arrangement (100) according to anyone of claims 17 - 19, wherein the first and the second pivotal rail segment (20, 21) are configured such that, when the first and the second pivotal rail segment (20, 21) are in the second position (B), at least one spacing (23) is formed between the first and the second pivotal rail segment (20, 21) and the first and the second fixed rail segment (30, 31), wherein the spacing (23) is dimensioned such that one roll (60, 61, 70, 71) of a respective pair of rolls (60, 61, 70, 71) may pass through the spacing () in direction from one contact portion (12, 13) of the

25

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transport rail, thereby allowing the container to be moved into or out of a position between the first and the second transport rail (10, 11).

21. The transport arrangement (100) according to claim 20, wherein the height of spacing
5 (23) is greater than the diameter of the rolls (60, 61, 70, 71).

22. The transport arrangement (100) according to anyone of claims 17 – 21, wherein the first and second pivotal rail segment (20, 21) have a predetermined length and a first and a second end, and is pivotally arranged around predetermined pivot position (22) between
10 the first and the second end; wherein the pivot position (22) is selected such that ,when the pivotal rail segment is in position (B), at least a first spacing (23) is formed between the first and the second pivotal rail segment (20, 21) and the first and the second fixed rail segment (30, 31);

15 23. The transport arrangement according to anyone of claims 17 - 22, wherein the rolls of each pair of rolls (60, 61; 70, 71) are spaced apart a distance (d) along a vertical axis (Y) extending between the rolls of the respective pair of rolls (60, 61; 70, 71) and a horizontal axis (X), extending between the rolls of the respective pair of rolls (60, 61; 70, 71).

20 24. The transport arrangement (100) according to anyone of claims 17 – 23, wherein the rolls of each pair of rolls (60, 61; 70, 71) are arranged such that the distance (d) between a first vertical axis (y₁) which tangents a first roll (60, 70) and a second vertical axis (y₂) which tangents a second roll (61, 71) is equal to the distance (d) between a first horizontal axis (x₁) which tangents a first roll 60, 70) and a second horizontal axis (x₂) which
25 tangents a second roll (61, 71).

25. The transport arrangement (100) according to claims 23 or 24, wherein the distance (d) between the rolls of each pair of rolls (60, 61; 70, 71) is equal to or greater than the height (h) of the transport rail (10, 11).

26. The transport arrangement (100) according to anyone of claims 17 – 25, wherein the envelope contact portion (3) of the rolls of each pair of rolls (60, 61; 70, 71) comprises a first and a second circumferential flange (1, 2) forming a circumferential track (3) for receiving the transport rail (10, 11).

5

27. The transport arrangement (100) according to anyone of claims 17 – 26, comprising a lifting jig (210) and a crane (220) for moving the lifting jig (210) along the first and second transport rails (10, 11), wherein the lifting jig (210) is configured to engage and hold the container (50).

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28. The transport arrangement (100) according to anyone of claims 17 – 27, comprising a first and a second guide rail section (40, 41), which extend orthogonally from the respective first and second transport rail (10, 11), wherein the first and second pivotal rail segment (20, 21), when pivoted into orthogonal position (B), is aligned with a respective first and second guide rail section (40, 41).

15

29. The transport arrangement (100) according to anyone of claims 17 – 28, wherein the first and second transport rail (10; 11) are arranged vertically in a building (200) or at the façade of a building (200).

20

30. The transport arrangement (100) according to anyone of claims 17 – 29, wherein the first and second transport rail (10; 11) are arranged horizontally in a building (200) or extend horizontally from the façade of a building in an area outside of the building (200).

31. A transport arrangement (100) for transporting persons in a building (200), comprising:

- a first and a second elongate transport rail (10, 11) arranged parallel with each other and having opposite elongate contact portions (12, 13) and a respective first and second pivotal rail segment (20, 21) and a respective first and second fixed rail segment (30, 31), and;

- a container (50) configured to be, at least partially, received between the first and a second elongate transport rail (10, 11) and comprising two opposite sidewalls (52, 53) and a first pair of rolls (60, 61) arranged on the first sidewall (52) and a second pair of rolls (70, 71) arranged on the second sidewall (53), wherein;

- the rolls of the first and second pair of rolls (60, 61; 70, 71) are spaced apart such that the first and second elongate transport rails (10, 11) may be received between a respective pair of rolls (60, 61; 70, 71) such that the rolls (60, 61; 70, 71) are in engagement with the opposite elongate contact portions (12, 13);

characterized in that;

- the first and the second pivotal rail segment (20, 21) are pivotal between a first position (A) in which the first and the second pivotal rail segment (20, 21) are aligned with the first and second fixed rail segment (30, 31) to a second position (B) in which the first and the second pivotal rail segment (20, 21) are orthogonal to the first and second fixed rail segment (30, 31), and;

- the first and the second pair of rolls (60, 61; 70, 71) are arranged such that the first and the second pivotal rail segment (20, 21), when in one of positions (A) and (B), may be received between the respective first and the second pair of rolls (60, 61; 70, 71) and that the first and the second pivotal rail segment (20, 21) may be pivoted to the other of positions (A) and (B) in which the first and the second pivotal rail segment (20, 21) is received between the respective first and second pair of rolls (60, 61; 70, 71).

32. The transport arrangement (100) according to claim 31, wherein the first and the second elongate transport rail (10, 11), respectively, comprises a first and a second opposite longitudinal contact portion (12, 13), and each roll (60, 61, 70, 71) comprises an envelope contact portion (3) wherein, the envelope contact portions (3) of the first and

second pair of rolls (60, 61, 70, 71) are in engagement with the opposing longitudinal contact portions (12, 13) of the first and second elongate transport rail (10, 11),

33. The transport arrangement (100) according to claim 31 or 32, wherein the first and the second elongate transport rail (10, 11) are arranged such that the first elongate contact portions (12) of the first and the second elongate transport rail (10, 11) extend parallel to each other and are directed in a first direction and such that the second elongate contact portions (13) of the first and the second elongate transport rail (10, 11) extend parallel to each other and are directed in a second direction which is opposite to the first direction.

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34. The transport arrangement (100) according to anyone of claims 31 - 33, wherein the first and the second pivotal rail segment (20, 21) are configured such that, when the first and the second pivotal rail segment (20, 21) are in the second position (B), at least one spacing (23) is formed between the first and the second pivotal rail segment (20, 21) and the first and the second fixed rail segment (30, 31), wherein the spacing (23) is dimensioned such that one roll (60, 61, 70, 71) of a respective pair of rolls (60, 61, 70, 71) may pass through the spacing (23) in direction from one contact portion (12, 13) of the transport rail, thereby allowing the container to be moved into or out of a position between the first and the second transport rail (10, 11).

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35. The transport arrangement (100) according to claim 34, wherein the height of spacing () is greater than the diameter of the rolls (60, 61, 70, 71).

36. The transport arrangement (100) according to anyone of claims 31 – 35, wherein the first and second pivotal rail segment (20, 21) have a predetermined length and a first and a second end, and is pivotally arranged around predetermined pivot position (22) between the first and the second end; wherein the pivot position is selected such that, when the pivotal rail segment is in position (B), at least a first spacing (23) is formed between the first and the second pivotal rail segment (20, 21) and the first and the second fixed rail segment (30, 31);

30

37. The transport arrangement according to anyone of claims 31 - 36, wherein the rolls of each pair of rolls (60, 61; 70, 71) are spaced apart a distance (d) along a vertical axis (Y) extending between the rolls of the respective pair of rolls (60, 61; 70, 71) and a horizontal axis (X), extending between the rolls of the respective pair of rolls (60, 61; 70, 71).

5

38. The transport arrangement (100) according to anyone of claims 31 – 37, wherein the rolls of each pair of rolls (60, 61; 70, 71) are arranged such that the distance (d) between a first vertical axis (y_1) which tangents a first roll (60, 70) and a second vertical axis (y_2) which tangents a second roll (61, 71) is equal to the distance (d) between a first horizontal axis (x_1) which tangents a first roll 60, 70) and a second horizontal axis (x_2) which tangents a second roll (61, 71).

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39. The transport arrangement (100) according to claims 37 or 38, wherein the distance (d) between the rolls of each pair of rolls (60, 61; 70, 71) is equal to or greater than the height (h) of the transport rail (10, 11).

15

40. The transport arrangement (100) according to anyone of claims 31 – 39, wherein the envelope contact portion (3) of the rolls of each pair of rolls (60, 61; 70, 71) comprises a first and a second circumferential flange (1, 2) forming a circumferential track (3) for receiving the transport rail (10, 11).

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41. The transport arrangement (100) according to anyone of claims 31 – 40, comprising a lifting jig (210) and a crane (220) for moving the lifting jig (210) along the first and second transport rails (10, 11), wherein the lifting jig (210) is configured to engage and hold the container (50).

25

42. The transport arrangement (100) according to anyone of claims 31 – 41, comprising a first and a second guide rail section (40, 41), which extend orthogonally from the respective first and second transport rail (10, 11), wherein the first and second pivotal rail segment (20, 21), when pivoted into orthogonal position (B), is aligned with a respective first and second guide rail section (40, 41).

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43. The transport arrangement (100) according to anyone of claims 31 – 42, wherein the first and second transport rail (10; 11) are arranged vertically in a building (200) or at the façade of a building (200).

- 5 44. The transport arrangement (100) according to anyone of claims 31 – 42, wherein the first and second transport rail (10; 11) are arranged horizontally in a building (200) or extend horizontally from the façade of a building in an area outside of the building (200).

- 10 45. A container (50) for transporting objects in a transport arrangement (100) comprising parallel first and second transport rails (10, 11), comprising:
- a top wall (51) and a bottom wall (54) and opposing first and second side walls (52, 53);
 - a first and a second pair of rolls (60, 61; 70, 71) for guiding the container along a first and second transport rail (10, 11) of a transport system, wherein the first pair of rolls (60, 61) is arranged on the first side wall (52) of the container (50) and the second pair of rolls
- 15 (70, 71) is arranged on the second side wall (53) of the container (50), **characterized in** that the rolls of each pair of rolls (60, 61; 70, 71) are spaced apart along a vertical axis (Y) extending between the rolls of said pair of rolls and along a horizontal axis (X) extending between the rolls of said pair of rolls.

- 20 46. The container (50) according to claim 45, wherein the bottom wall (54) of the container comprises wheels (55) and/or tracks (56) which are configured to receive lifting forks of a lift-truck.

- 25 47. The container (50) according to claim 45 or 46, wherein the container (50) is collapsible.

48. The container (50) according to anyone of claims 45 - 47, wherein the top wall (51) and the bottom wall (54) are joined to the side walls (52, 53) by hinges.

49. The container (50) according to anyone of claims 45 – 48, wherein two pairs of rolls (60, 61; 80, 81) are arranged on the first sidewall (52) and two pairs of rolls (70, 71; 90, 91) are arranged on the second sidewall (53).

5 50. The container (50) according to anyone of claims 45 – 49, configured for transporting goods.

51. The container (50) according to anyone of claims 45 – 50, configured for transporting persons.

10

52. A container (50) for transporting goods in a transport arrangement (100) comprising parallel first and second transport rails (10, 11), comprising:

- a top wall (51) and a bottom wall (54) and opposing first and second side walls (52, 53);

- a first and a second pair of rolls (60, 61; 70, 71) for guiding the container along a first

15 and second transport rail (10, 11) of a transport system, wherein the first pair of rolls (60,

61) is arranged on the first side wall (52) of the container (50) and the second pair of rolls

(70, 71) is arranged on the second side wall (53) of the container (50), **characterized in**

that the rolls of each pair of rolls (60, 61; 70, 71) are spaced apart along a vertical axis

(Y) extending between the rolls of said pair of rolls and along a horizontal axis (X)

20 extending between the rolls of said pair of rolls.

53. The container (50) according to claim 50, wherein the bottom wall (54) of the container comprises wheels (55) and/or tracks (56) which are configured to receive lifting forks of a lift-truck.

25

54. The container (50) according to claim 52 or 53, wherein the container (50) is collapsible.

55. The container (50) according to anyone of claims 52 - 54 wherein the top wall (51)

30 and the bottom wall (54) are joined to the side walls (52, 53) by hinges.

56. The container (50) according to anyone of claims 52 – 55, wherein two pairs of rolls (60, 61; 80, 81) are arranged on the first sidewall (52) and two pairs of rolls (70, 71; 90, 91) are arranged on the second sidewall (53).

- 5 57. A container (50) for transporting persons in a transport arrangement (100) comprising parallel first and second transport rails (10, 11), comprising:
- a top wall (51) and a bottom wall (54) and opposing first and second side walls (52, 53);
 - a first and a second pair of rolls (60, 61; 70, 71) for guiding the container along a first and second transport rail (10, 11) of a transport system, wherein the first pair of rolls (60, 61) is arranged on the first side wall (52) of the container (50) and the second pair of rolls (70, 71) is arranged on the second side wall (53) of the container (50), **characterized in** that the rolls of each pair of rolls (60, 61; 70, 71) are spaced apart along a vertical axis (Y) extending between the rolls of said pair of rolls and along a horizontal axis (X) extending between the rolls of said pair of rolls.

15

58. The container (50) according to claim 57, wherein the bottom wall (54) of the container comprises wheels (55) and/or tracks (56) which are configured to receive lifting forks of a lift-truck.

- 20 59. The container (50) according to claim 57 or 58, wherein the container (50) is collapsible.

60. The container (50) according to anyone of claims 57 - 59, wherein the top wall (51) and the bottom wall (54) are joined to the side walls (52, 53) by hinges.

25

61. The container (50) according to anyone of claims 57 –60 wherein two pairs of rolls (60, 61; 80, 81) are arranged on the first sidewall (52) and two pairs of rolls (70, 71; 90, 91) are arranged on the second sidewall (53).

- 30 62. Use of a transporting arrangement (100) according to anyone of claims 1 – 16, for transporting goods and/or persons.

63. Use of a transporting arrangement (100) according to anyone of claims 17 – 30, for transporting goods.
- 5 64. Use of a transporting arrangement (100) according to anyone of claim 31 – 44, for transporting persons.
65. Use of a container (50) according to anyone of claims 45 – 51 for transporting goods and/or persons.
- 10
66. Use of a container (50) according to anyone of claims 52 – 56 for transporting goods.
- 15
67. Use of a container (50) according to anyone of claims 57 -61 for transporting persons.

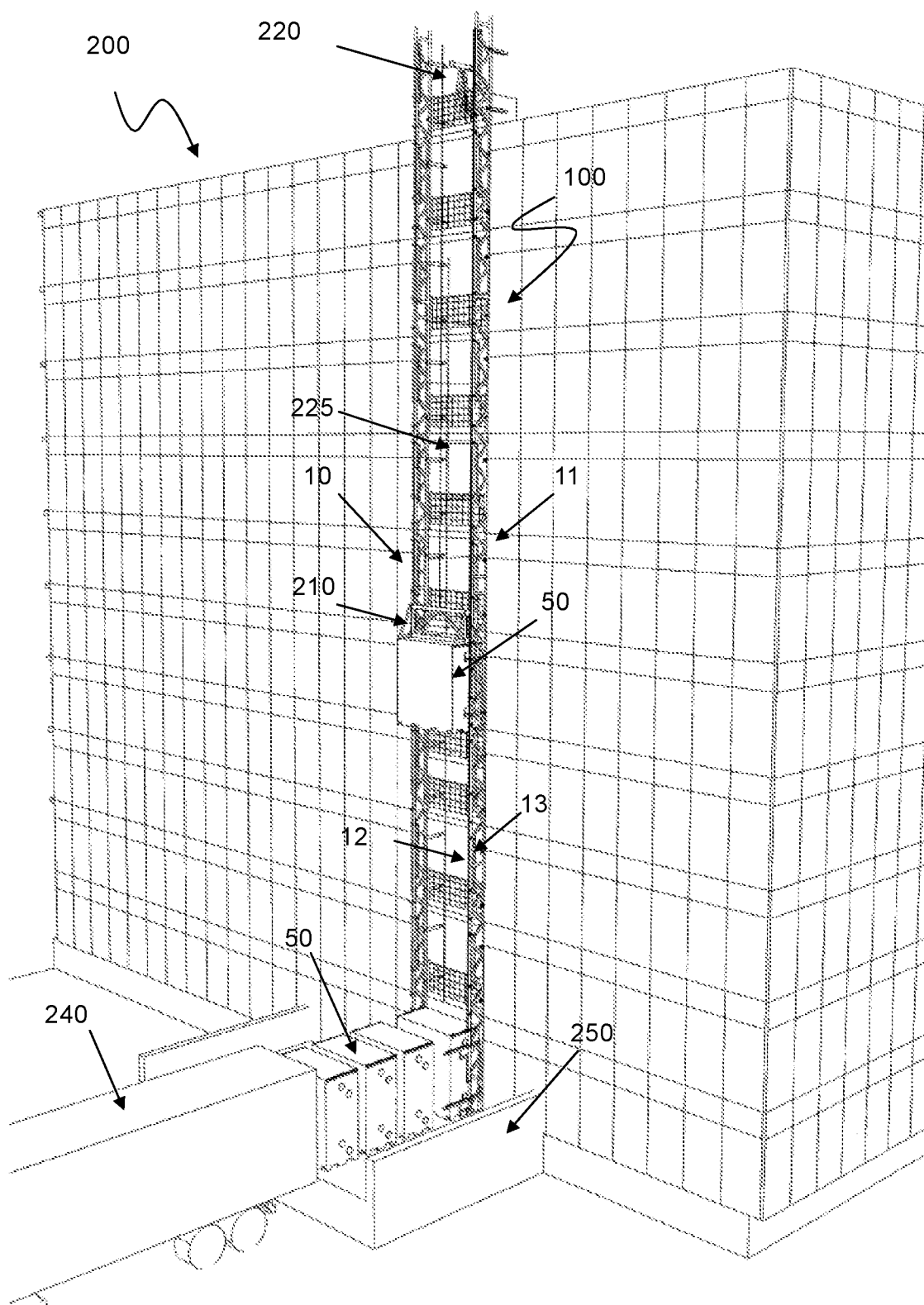


Figure 1

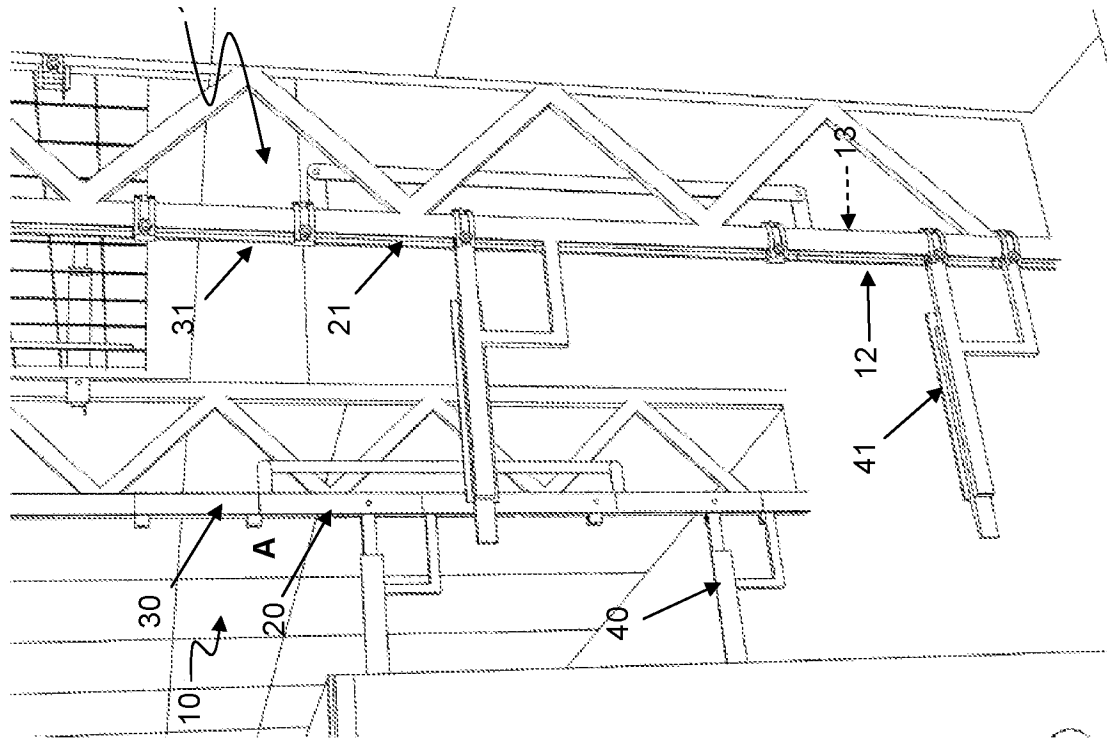


Figure 3

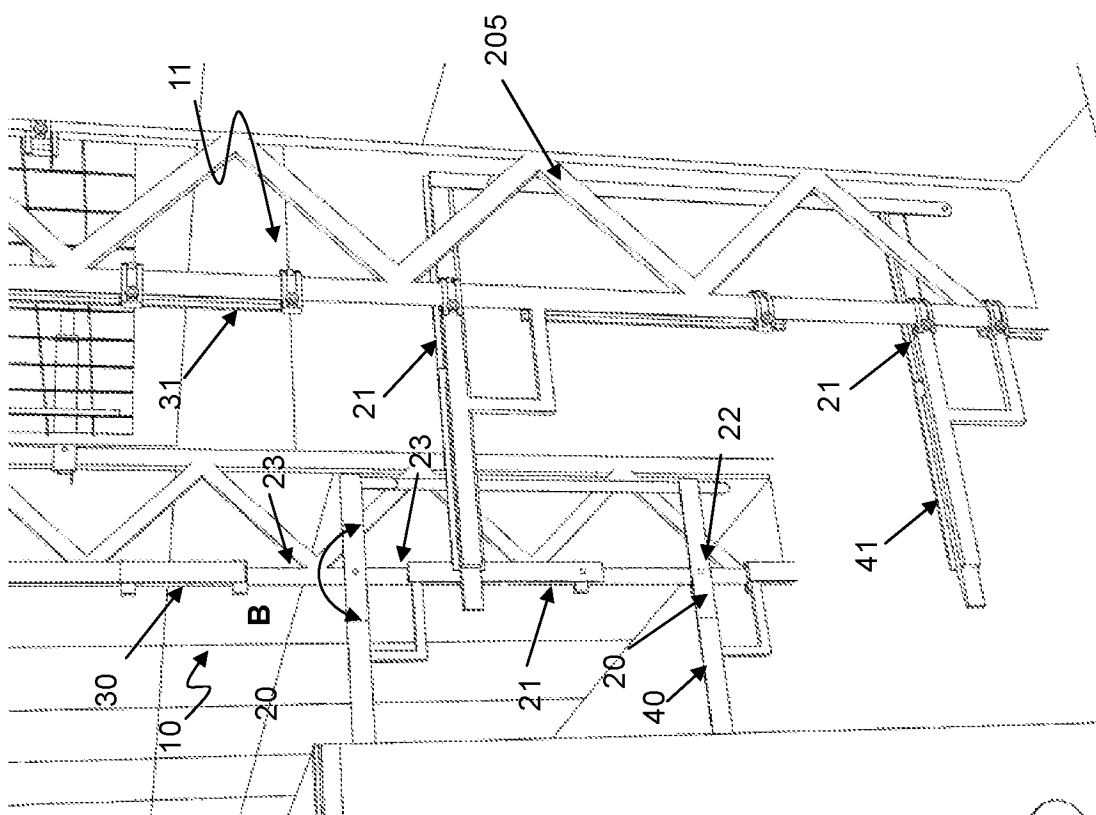


Figure 2

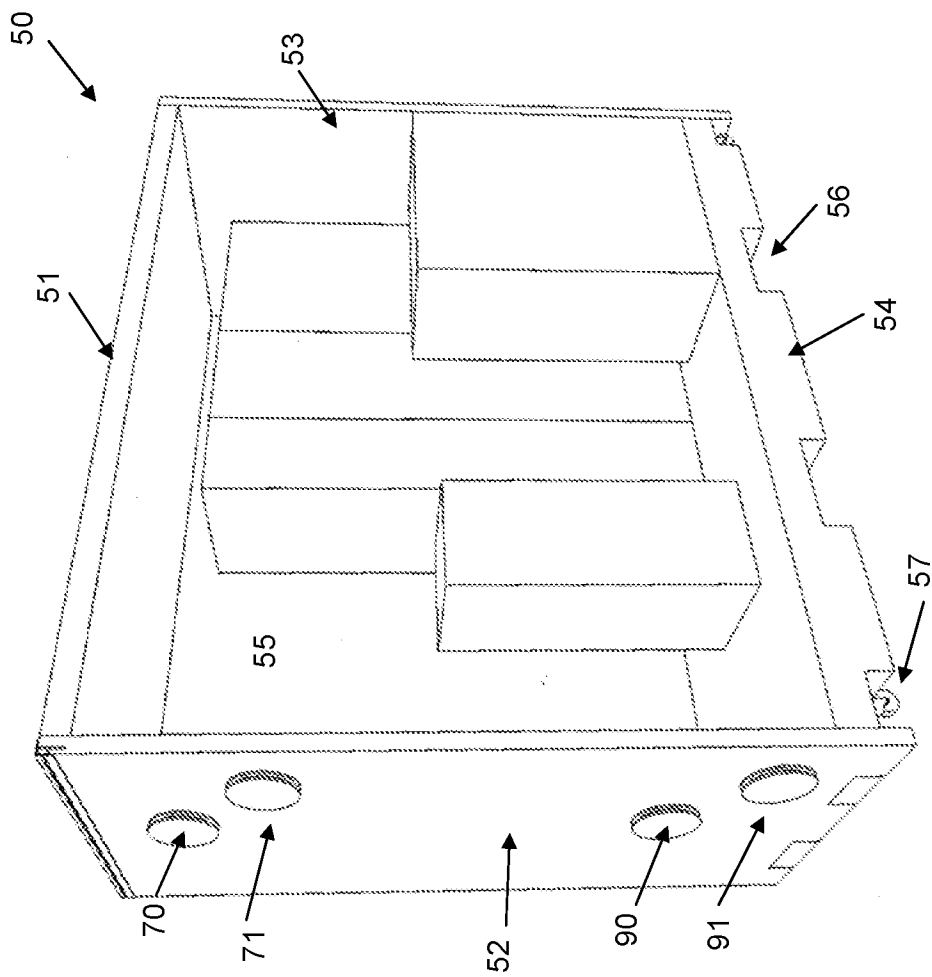


Figure 4a

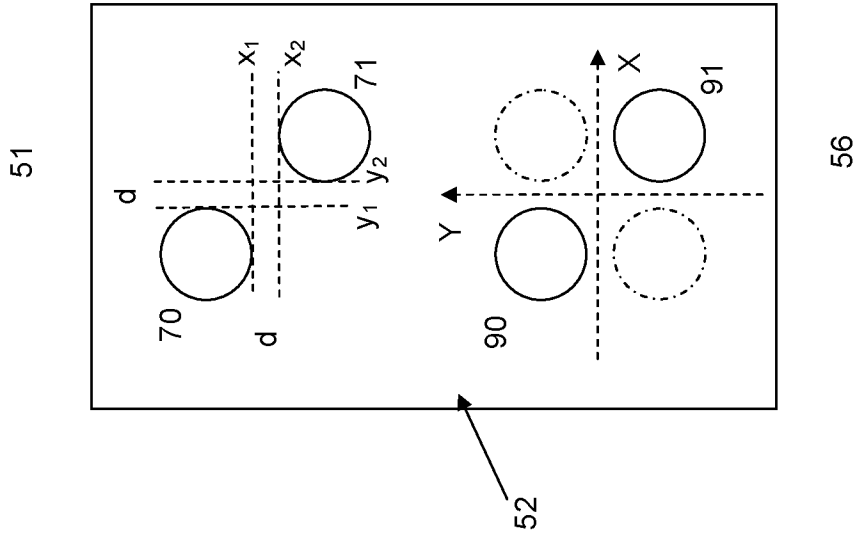


Figure 4b

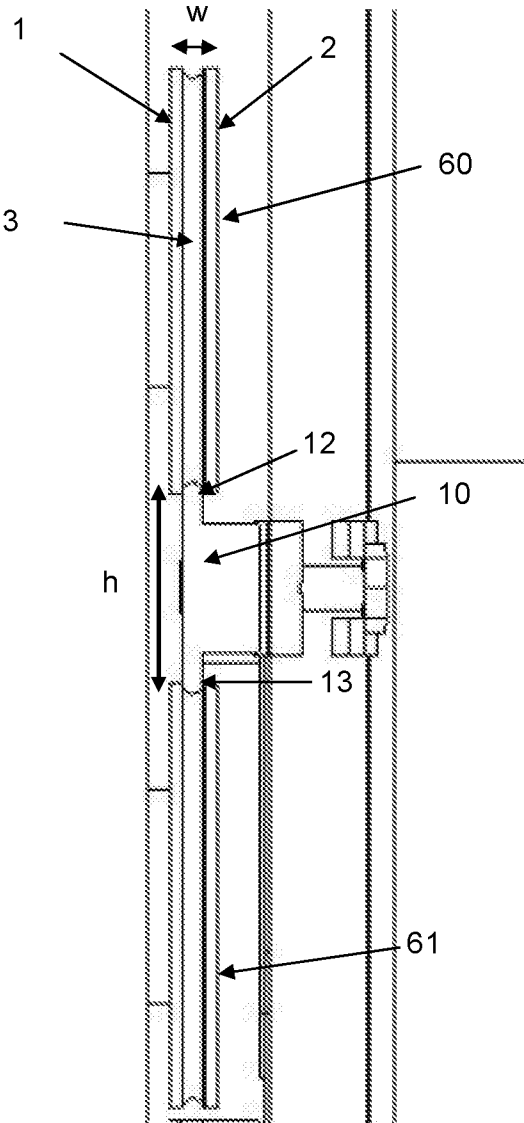


Figure 4c

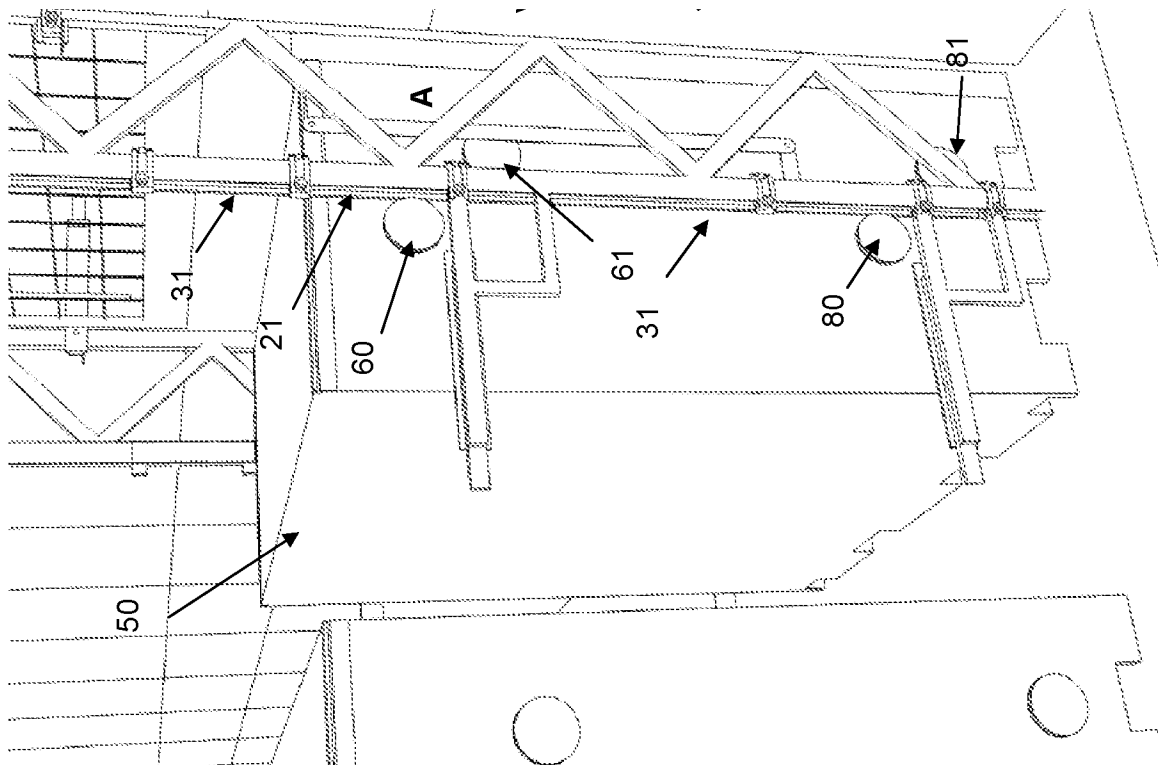


Figure 7

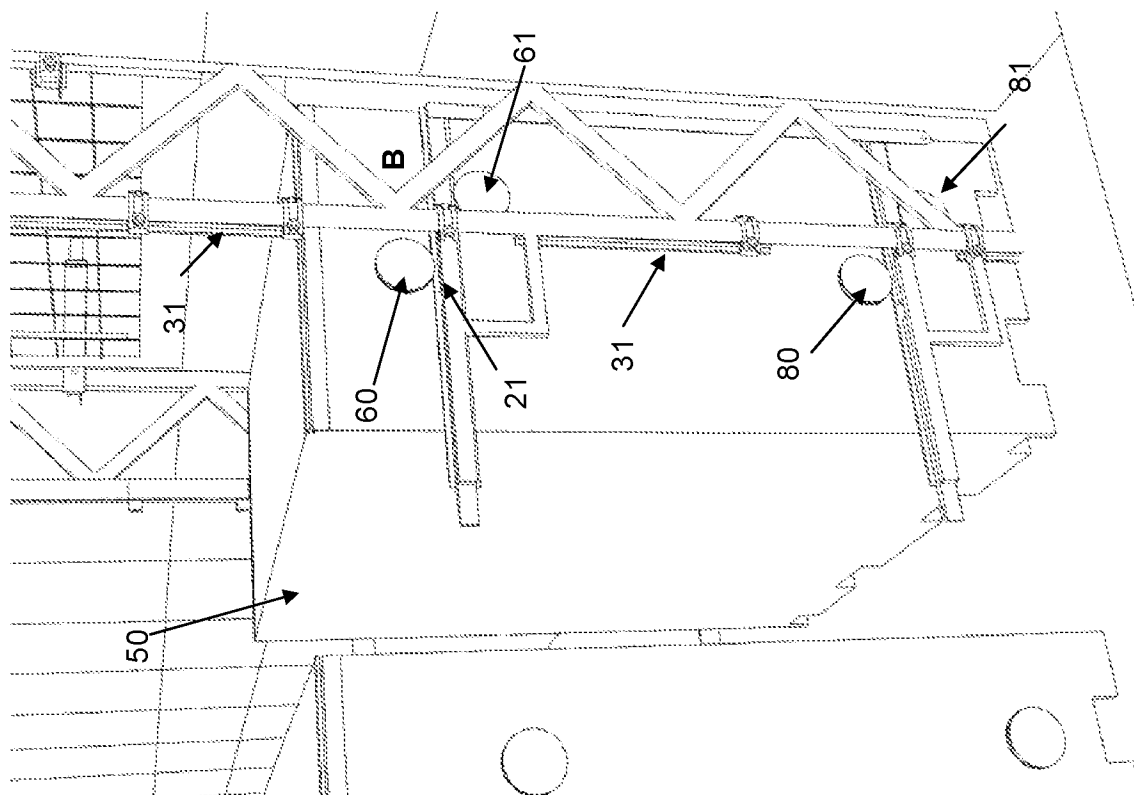


Figure 6

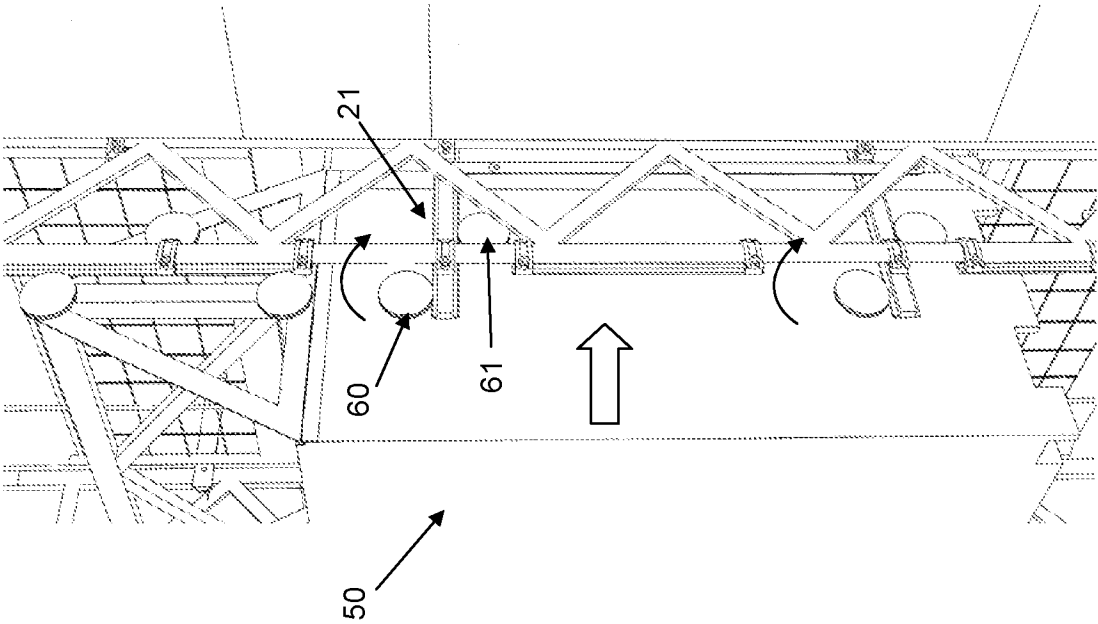


Figure 9

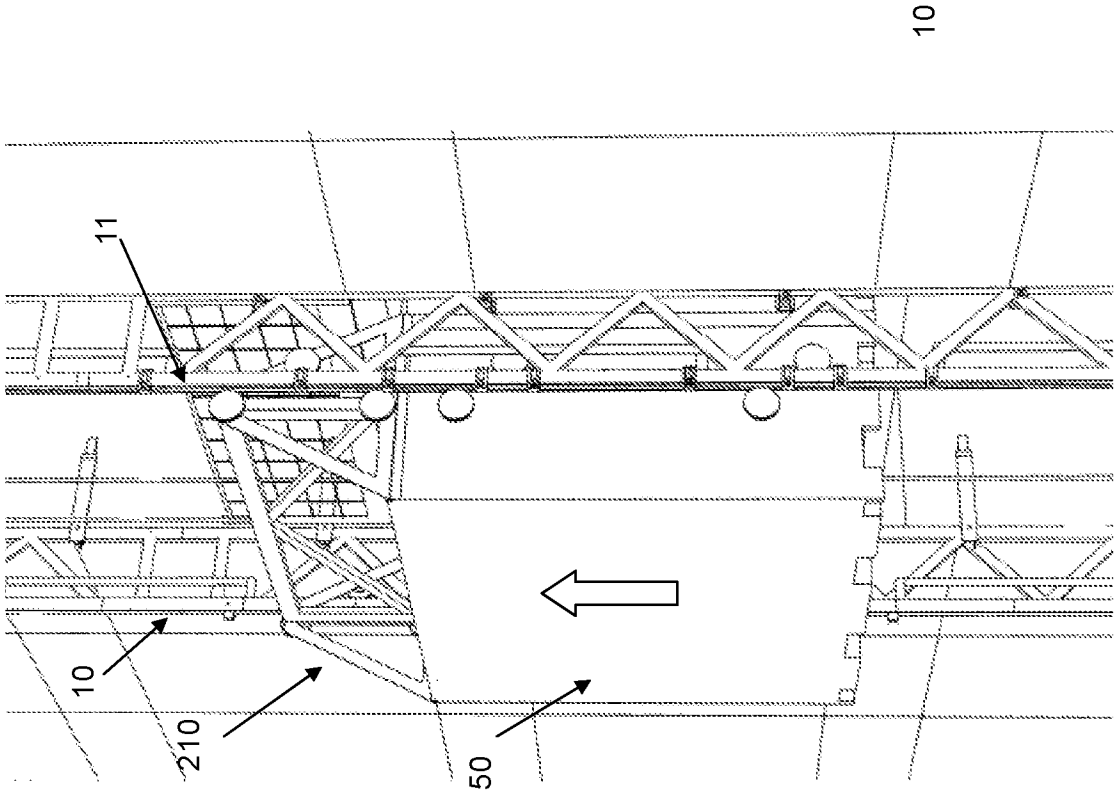


Figure 8

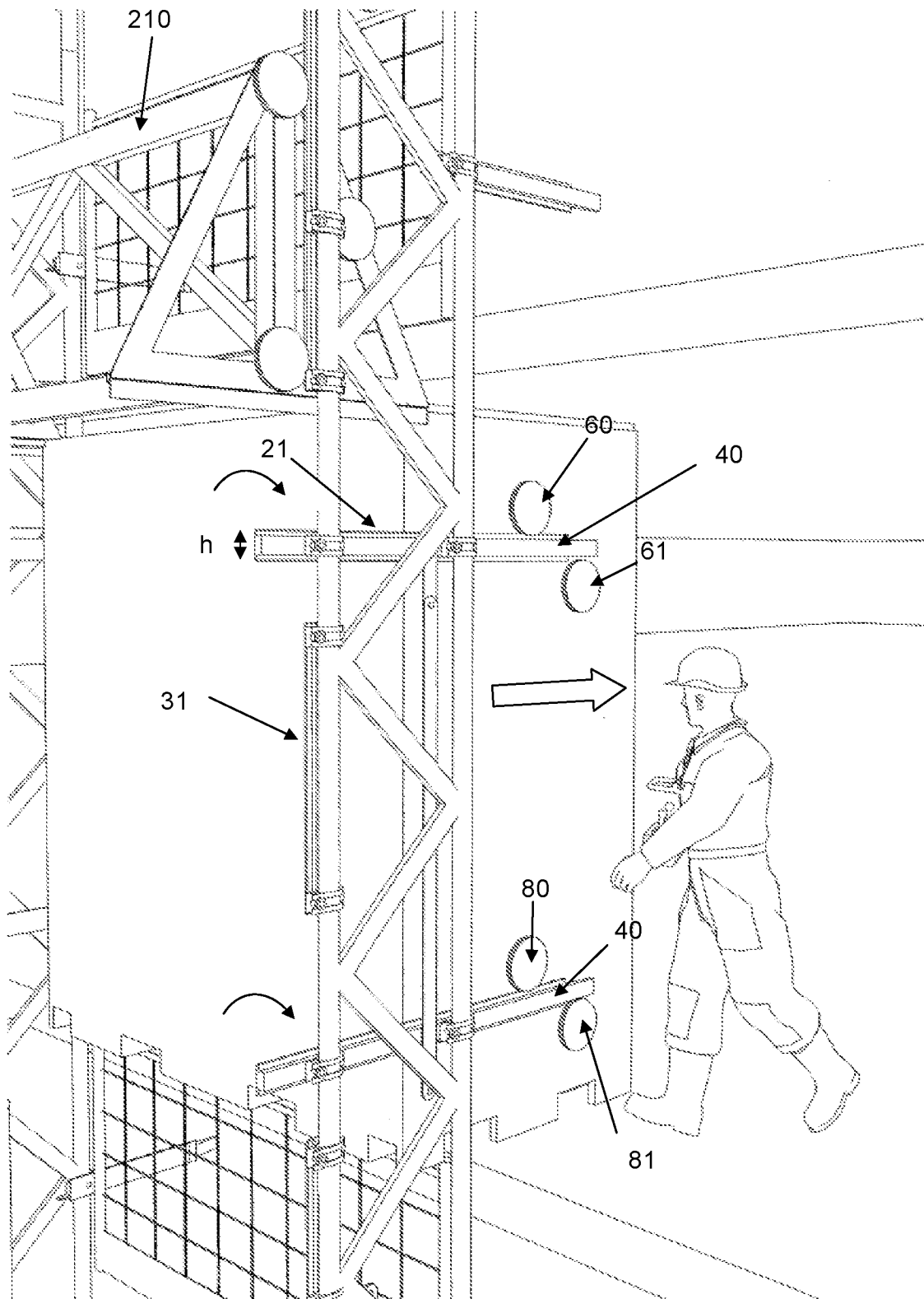


Figure 10

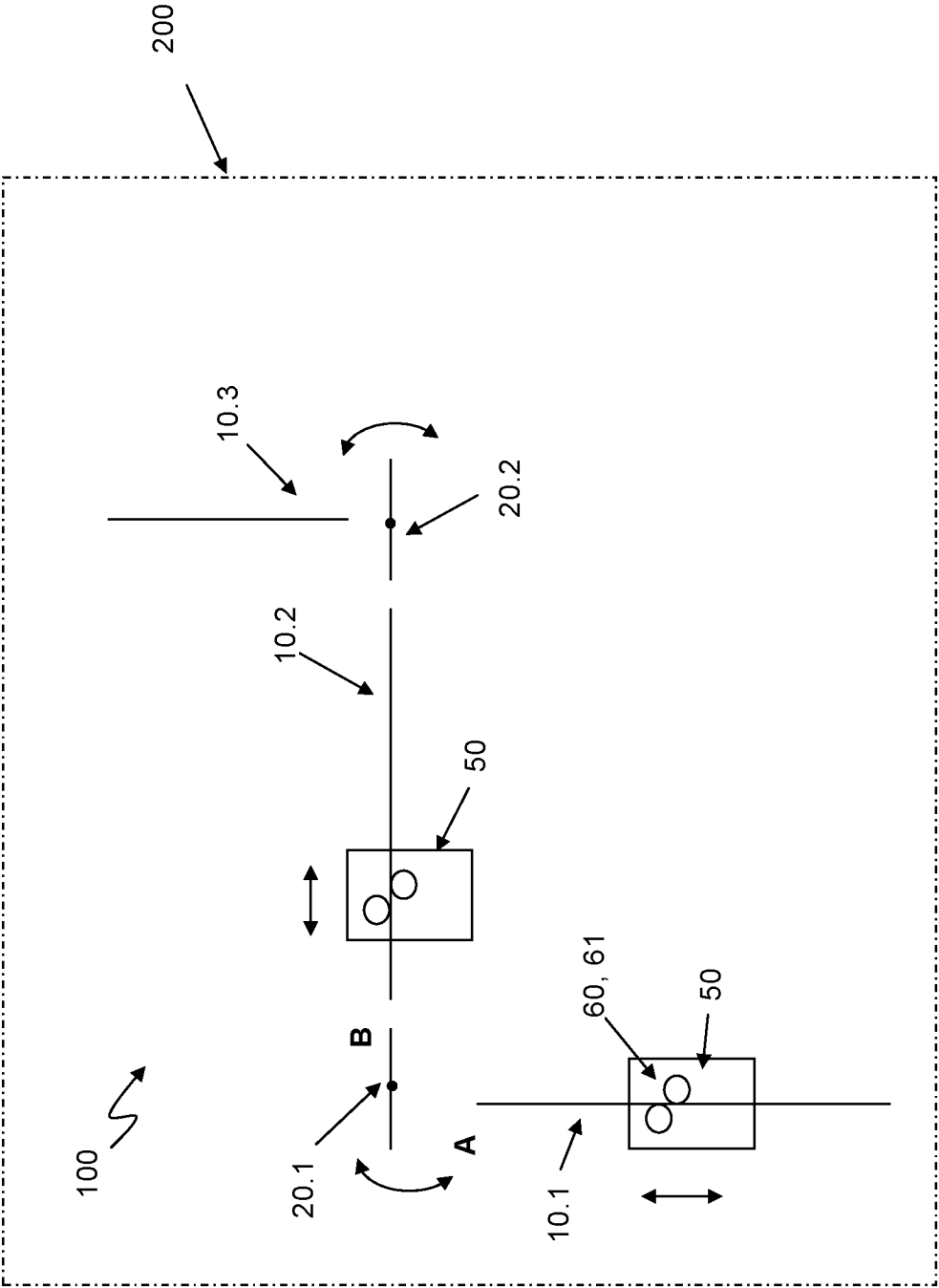


Figure 11

INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE2017/050230

A. CLASSIFICATION OF SUBJECT MATTER

IPC: see extra sheet

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: B66B, E04G

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

SE, DK, FI, NO classes as above

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

EPO-Internal, PAJ, WPI data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 1645942 A (BUSHNELL JAMES E), 18 October 1927 (1927-10-18); page 1, line 57 - line 66; figures 1-3	45-67
A	--	1-44
X	DE 2029352 A1 (LÖHRER, AUGUST,STEINAC; ST. GALLEN (SCHWEITZ)), 23 December 1971 (1971-12-23); pages 9-10; figures 1,3	45-67
A	--	1-44



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

09-06-2017

Date of mailing of the international search report

09-06-2017

Name and mailing address of the ISA/SE

Patent- och registreringsverket

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/SE2017/050230

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 20080115688 A1 (NEALE JIMMY ROSS), 22 May 2008 (2008-05-22); abstract; paragraphs [0037], [0041], [0042], [0046], [0049], [0055]; figures 1,4,6,12 --	1-67
A	US 4865155 A (MONTAIGNE MICHAEL D ET AL), 12 September 1989 (1989-09-12); abstract; column 5, line 12 - line 32; figures 6,7 --	1-67
A	US 4018306 A (LYONS MERLYN E), 19 April 1977 (1977-04-19); abstract; column 6, line 37 - line 60; figure 13 --	1-67
A	US 4709782 A (LIPINSKI HENRY), 1 December 1987 (1987-12-01); abstract; column 5, line 32 - line 55; figures 10-12 --	1-67
A	DE 10244099 A1 (HOERNICKE CHRISTIAN), 1 April 2004 (2004-04-01); abstract; figures 1,5 -- -----	1-67

Continuation of: second sheet

International Patent Classification (IPC)

B66B 9/187 (2006.01)

B66B 9/16 (2006.01)

E04G 3/28 (2006.01)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/SE2017/050230

US	1645942 A	18/10/1927	NONE		
DE	2029352 A1	23/12/1971	NONE		
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			WO	9001013 A1	08/02/1990
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			DE	3734463 A1	21/07/1988
			GB	2202439 A	28/09/1988
			JP	63156654 U	14/10/1988
DE	10244099 A1	01/04/2004	NONE		