

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
4 October 2007 (04.10.2007)

PCT

(10) International Publication Number
WO 2007/110651 A1

(51) International Patent Classification:
B65D 19/42 (2006.01)

(21) International Application Number:
PCT/GB2007/001149

(22) International Filing Date: 29 March 2007 (29.03.2007)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0606267.3 29 March 2006 (29.03.2006) GB

(71) Applicant (for all designated States except US): **DS SMITH PLASTICS LIMITED** [GB/GB]; Brownsover Road, Rugby, Warwickshire CV21 1HL (GB).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **WHITEHEAD, David** [GB/GB]; 28 Longcroft, Brimsham Park, Yate, Bristol BS37 7YW (GB). **SPAREY, Ray** [GB/GB]; 179 Grange Road, Tuffley, Gloucester GL4 0NP (GB).

(74) Agent: **POWELL, Timothy**; Eric Potter Clarkson LLP, Park View House, 58 The Ropewalk, Nottingham NG1 5DD (GB).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

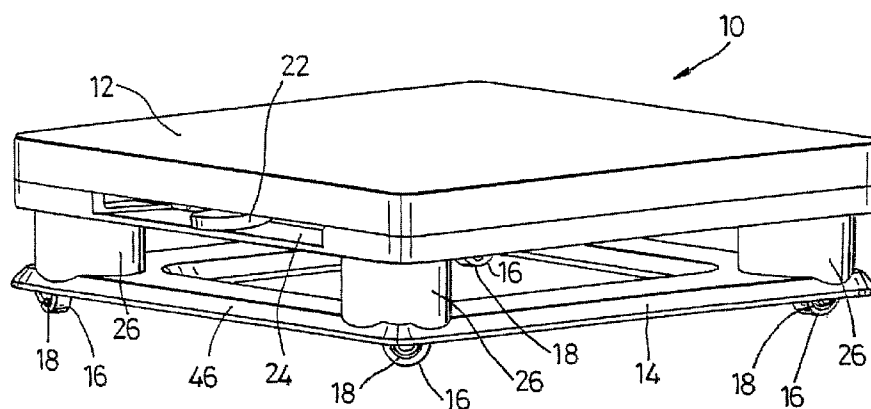
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: A PALLET



(57) **Abstract:** A pallet (10) according to the invention comprises a deck (12) which has at least one rotatable member (16) secured thereto. The or each rotatable member (16) enables the pallet (10) to move on a support surface (20). The pallet (10) also includes an engagement member (14) which is moveable relative to the deck (12) between a first position in which it is engagable with the support surface (20) so as to inhibit movement of the pallet (10) relative thereto, and a second position in which it is spaced from the support surface (20) so as to allow movement of the pallet (10) relative thereto.

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A PALLET

This invention relates to a pallet for use in particular, but not exclusively, for the storage, transportation and retail of goods.

5

A conventional pallet includes a deck which supports the goods and a skid which extends completely around the perimeter of the pallet.

10

One problem with conventional pallets is that a lifting device such as a forklift truck or a trolley is required in order to move a fully loaded pallet from one location to another. In addition, often such lifting devices are bulky and so an operative may have difficulty operating them within, e.g. the confines of a storage area.

15

Therefore there is a need for a pallet which obviates the need for a lifting device to move the pallet from one location to another.

According to the invention there is provided a pallet comprising:

20

a deck having at least one rotatable member secured thereto so as to enable the pallet to move on a support surface; and

an engagement member moveable relative to the deck between a first position in which it is engagable with the support surface so as to inhibit movement of the pallet relative thereto, and a second position in which it is spaced from the support surface so as to allow movement of the pallet relative thereto.

25

The inclusion of at least one rotatable member and an engagement member allows the pallet to selectively function as a conventional static pallet while in a "locked" condition in which the engagement member is in the first position, or as a dolly while in a "released" condition in which the engagement member is in the second position.

30

In addition, the engagement member being movable relative to the deck means that in order to release the pallet it is only necessary for an operative to lift the

mass of the engagement member. The mass of the engagement member is considerably less than the combined mass of the pallet and the goods loaded thereon and so does not require the use of a separate lifting device.

- 5 Preferably the pallet further includes an actuator for moving the engagement member between the first and second positions. This provides an operative with a convenient way of locking or releasing the pallet, as desired.

10 Optionally the actuator is substantially housed within the deck. This helps to protect the actuator and reduces the likelihood of it becoming damaged during movement of a pallet.

Conveniently the actuator is accessible from at least two sides of the pallet. As a result an operative is more likely to be able to lock or release the pallet when it is
15 positioned adjacent to one or more other objects.

In a preferred embodiment of the invention the engagement member includes at least one sleeve, the or each sleeve extending around a given rotatable member. This allows the engagement member to adopt a compact arrangement which does
20 not exceed the footprint of the deck.

Optionally the actuator includes at least one actuation member, the or each actuation member corresponding to a given sleeve and being moveable relative thereto so as to move the engagement member between the first and second
25 positions. In this way movement of the actuator is conveniently translated into movement of the engagement member.

Preferably the or each actuation member is rotatable relative to the corresponding sleeve. This provides a compact arrangement, as well as providing an operative
30 with a degree of mechanical advantage.

In another preferred embodiment of the invention the or each actuation member and corresponding sleeve include mutually interengagable first and second

members which translate rotational movement of the or each actuation member into linear movement of the corresponding sleeve.

Optionally the first member is a spigot and the second member is a profiled slot.

5

The foregoing features provide a convenient and compact way of moving the engagement member between the first and second positions.

10

In a further preferred embodiment of the invention the profiled slot defines first and second retaining portions each corresponding to the respective first and second position of the engagement member. Such an arrangement obviates the need for a separate locking device for maintaining the engagement member in each of the first and second positions.

15

Preferably the actuator further includes a lever pivotally connected to the deck and moveably connected with the or each actuation member. This allows an operative to easily move the or each actuation member.

20

Conveniently the engagement member defines a skid member extending along a perimeter of the pallet as defined by the perimeter of the deck.

The engagement member may also include first and second skid members, each skid member extending along one side of the pallet.

25

The or each skid facilitates stacking of the pallet and helps the pallet of the invention to resemble a conventional pallet, thereby promoting acceptance by, e.g. existing operatives. In addition, the skid helps to distribute the mass of the pallet and the goods loaded thereon between the or each rotatable member and the engagement member when the engagement member is in the first position.

30

In a still further preferred embodiment of the invention the skid member is spaced from the deck in at least the first position. This arrangement allows an operative to lift the pallet of the invention using a conventional lifting device, if desired.

Preferably the pallet includes four rotatable members, and a corresponding number of sleeves and actuation members. This allows a respective rotatable member to be positioned at each corner of the pallet, thereby helping to ensure the stability of the pallet.

Optionally the deck and the engagement member include at least one interengagable location formation for locating one pallet relative to another such pallet when stacked one on top of another. Such a feature helps to reduce the likelihood of adjacent stacked pallets being dislodged from one another.

Preferably the pallet further includes a mechanical handle. The inclusion of a mechanical handle facilitates moving of the pallet by an operative while the engagement member is in the second position.

There now follows a brief description of various embodiments of the invention, by way of non-limiting example, with reference being made to the accompanying drawings, in which:

Figure 1(a) shows a pallet according to a first embodiment of the invention in a first operating condition;

Figure 1(b) shows the pallet of Figure 1(a) in a second operating condition;

Figure 2 is a perspective, schematic view from below of the pallet of Figure 1(a) in the first operating condition;

Figure 3 shows a schematic, plan view from above of the pallet of Figure 1(a);

Figure 4(a) shows a schematic, elevational view from a first side of a portion of the pallet of Figure 1(a) in the first operating condition;

Figure 4(b) shows a schematic, elevational view from the first side of the portion of the pallet shown in Figure 4(a) in the second operating condition;

Figure 5(a) shows a pallet according to a second embodiment of the invention in a first operating condition;

Figure 5(b) shows the pallet of Figure 5(a) in a second operating condition;
and

Figure 6 is a partially exploded perspective view from below of the pallet
of Figure 5(a) in the first operating condition;

5

A pallet according to a preferred embodiment of the invention is designated
generally by the reference numeral 10. The pallet 10 includes a deck 12 and an
engagement member 14.

10 The deck 12 may be adapted to accommodate returnable transit packaging such as
crates, beverage trays or layer trays. The deck 12 has four rotatable members 16
secured thereto which enable it to move on a support surface 20. Each rotatable
member 16 is a castor 18. Other embodiments of the invention may include
different rotatable members 16 such as wheels, rollers or balls, and a different
15 number of rotatable members 16.

The engagement member 14 is moveable relative to the deck 12 between a first
position and a second position. In the first position the engagement member 14 is
engagable with the support surface 20, as shown in Figure 1(a), whereas in the
20 second position the engagement member 14 is spaced from the support surface 20,
as shown in Figure 1(b).

The pallet 10 also includes an actuator 22 for moving the engagement member
between the first and second position and which, in the embodiment shown, in
25 housed substantially within the deck 12. As shown in Figure 3, the actuator 22 is
accessible, via respective recessed slots 24, from two sides of the pallet 10.

In the embodiment shown, the engagement member 14 includes four sleeves 26
each of which extends completely around a given castor 18. The actuator 22
30 includes four corresponding actuation members 28 each of which is rotatable
relative to the corresponding sleeve 26 so as to move the engagement member 14
between the first and second positions. Other embodiments of the invention may

include a different number of sleeves 26 and/or actuation members 28 which may be moveable relative to one another in a different way.

Each sleeve 26 includes two first members 30 in the form of a spigot 32 and each
5 actuation member 28 includes two second members 34 in the form of a profiled slot 36. The first and second members 30, 34 of corresponding actuation members 28 and sleeves 26 are mutually interengagable and cooperate to translate rotational movement of the actuation member 28 into linear movement of the sleeve 26.

10 Each profiled slot 36 defines a first and second retaining portion 38, 40.

Other interengagable members, arrangements and configurations are also possible.

As can best be seen in Figure 3, the actuator 22 includes a lever 42 which is
15 pivotally connected to the deck 12 and pivotally connected with each actuation member 28. In the embodiment shown, the lever 41 is pivotally connected to each actuation member 28 via a respective linkage 44 such that movement of the lever 42 causes each of the actuation members 28 to rotate in the same direction.

20 The engagement member 14 also defines a skid 46 which extends along a perimeter of the pallet 10, as defined by the perimeter of the deck 12. The skid 46 is spaced from the deck 12 when the engagement member 14 is in each of the first and second positions, as shown in Figures 1(a) and 1(b). This allows an operative to lift the pallet 10 using a conventional lifting device such as a forklift truck or a
25 trolley.

Each of the deck 12 and the engagement member 14 includes at least one interengagable location formation 48. In the embodiment shown the deck includes four location protrusions 50 and the engagement member 14 includes four
30 corresponding location recesses 52. When one pallet 10 is stacked upon another the location protrusions 50 and location recesses 52 engage with one another so as to reduce the likelihood of one pallet being dislodged from another.

A pallet according to a second embodiment of the invention is designated generally by the reference numeral 60. The second pallet 60 shares many features with the first pallet 10, and these common features are designated using the same reference numerals.

5

The second pallet 60 differs from the first pallet 10 in that the first pallet 60 has an engagement member 14 which includes first and second skid members (62, 64). In the embodiment shown each skid member (62, 64) extends along one side of the pallet 60. In other embodiments of the invention the skid members (62, 64) may
10 be arranged differently.

In the second pallet 60 shown, a first pair of castors 66 lying in the first skid member 62 are fixed such that they are unable to pivot about an, in-use, vertically extending axis. A second pair of castors 68 lying in the second skid member 64
15 are rotatable about an, in-use, vertically extending axis. Such an arrangement imbues the second pallet 60 with a controllable steering functionality.

Such a castor arrangement may also be adopted in other embodiments of the invention including in the first pallet 10 described above.

20

The pallets 10, 60 may also include a mechanical handle (not shown). In the case of the second pallet having the steerable castors described above, the handle is engagable with the end of pallet 60 having the second pair of rotatable castors 68, i.e. adjacent to the second skid member 64, to allow an operative to move and
25 steer the pallet 60 while the engagement member 14 is in the second position.

Another embodiment of the pallet 10 may include one or more drainage apertures (not shown) which facilitate the draining of fluid from the pallet (10) following washing.

30

In use, an operative may operate the lever 42 using, e.g. his foot or the handle, so as to move the engagement member 14 between the first and second positions.

Movement of the lever 42 causes each of the actuation members 28 to rotate relative to the corresponding sleeve 26, thereby causing each profiled slot 36 to move relative to the corresponding spigot 32. As a result each spigot 32 is forced to move towards or away from the deck 12. This causes the sleeve 26 connected
5 which each spigot 32 to move towards or away from the deck 12, thereby moving the engagement member 14 between the first and second positions.

When the engagement member 14 is in the first position (as shown in Figures 1(a) and 5(a)) each spigot 32 lies within the first retaining portion 38 of the profiled
10 slot 36, as shown in Figure 4(a). The first retaining portion 38 is arranged so as to inhibit the translation of linear movement of the engagement member 14 into rotational movement of each actuation member 28, thereby locking the engagement member 14 in the first position.

15 When the engagement portion 38 is in the first position it is able to engage with the support surface 20 so as to inhibit movement of the pallet 10 relative thereto. In this way the engagement member 14 acts as a brake which retains the pallet 10 in a desired position.

20 When the engagement member 14 is in the second position (as shown in Figures 1(b) and 5(b)) each spigot 32 lies within the second retaining portion 40 of the profiled slot 36, as shown in Figure 4(b). The second retaining portion 40 is also arranged so as to inhibit the translation of linear movement of the engagement member 14 into rotational movement of each actuation member 28, thereby
25 locking the engagement member 14 in the second position.

When the engagement member 14 is in the second position it is spaced from the support surface 20, and the castors 18 are exposed. An operative is then able to move the pallet 10 as desired without the need for a separate lifting device.

30

CLAIMS:

1. A pallet comprising:
a deck having at least one rotatable member secured thereto so as to enable
5 the pallet to move on a support surface; and
an engagement member moveable relative to the deck between a first
position in which it is engagable with the support surface so as to inhibit
movement of the pallet relative thereto, and a second position in which it is spaced
from the support surface so as to allow movement of the pallet relative thereto.
10
2. A pallet according to Claim 1 further including an actuator for moving the
engagement member between the first and second positions.
3. A pallet according to Claim 2 wherein the actuator is substantially housed
15 within the deck.
4. A pallet according to Claim 2 or Claim 3 wherein the actuator is accessible
from at least two sides of the pallet.
- 20 5. A pallet according to any preceding claim wherein the engagement
member includes at least one sleeve, the or each sleeve extending around a given
rotatable member.
6. A pallet according to Claim 5 when dependent on any of claims 2 to 4,
25 wherein the actuator includes at least one actuation member, the or each actuation
member corresponding to a given sleeve and being moveable relative thereto so as
to move the engagement member between the first and second positions.
7. A pallet according to Claim 6 wherein the or each actuation member is
30 rotatable relative to the corresponding sleeve.
8. A pallet according to Claim 7 wherein the or each actuation member and
corresponding sleeve include mutually interengagable first and second members

which translate rotational movement of the or each actuation member into linear movement of the corresponding sleeve.

9. A pallet according to Claim 8 wherein the first member is a spigot and the
5 second member is a profiled slot.

10. A pallet according to Claim 9 wherein the profiled slot defines first and second retaining portions each corresponding to the respective first and second position of the engagement member.

10

11. A pallet according to any of claims 6 to 10 wherein the actuator further includes a lever pivotally connected to the deck and moveably connected with the or each actuation member.

12. A pallet according to any preceding claim wherein the engagement
15 member defines a skid member extending along a perimeter of the pallet as defined by the perimeter of the deck.

13. A pallet according to any of Claims 1 to 11 wherein the engagement
20 member includes first and second skid members, each skid member extending along one side of the pallet.

14. A pallet according to Claim 12 of Claim 13 wherein the or each skid member is spaced from the deck in at least the first position.

25

15. A pallet according to any preceding claim wherein the pallet includes four rotatable members, and a corresponding number of sleeves and actuation members.

16. A pallet according to any preceding claim wherein each of the deck and the
30 engagement member includes at least one interengagable location formation for locating one pallet relative to another such pallet when stacked one on top of another.

17. A pallet according to any preceding claim further including a mechanical handle.

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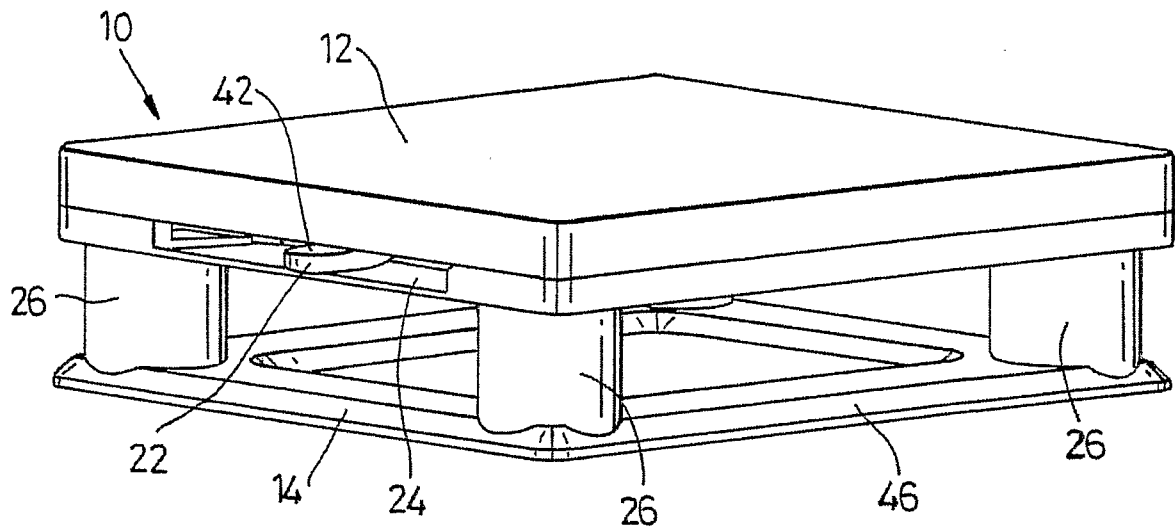


Fig. 1(a)

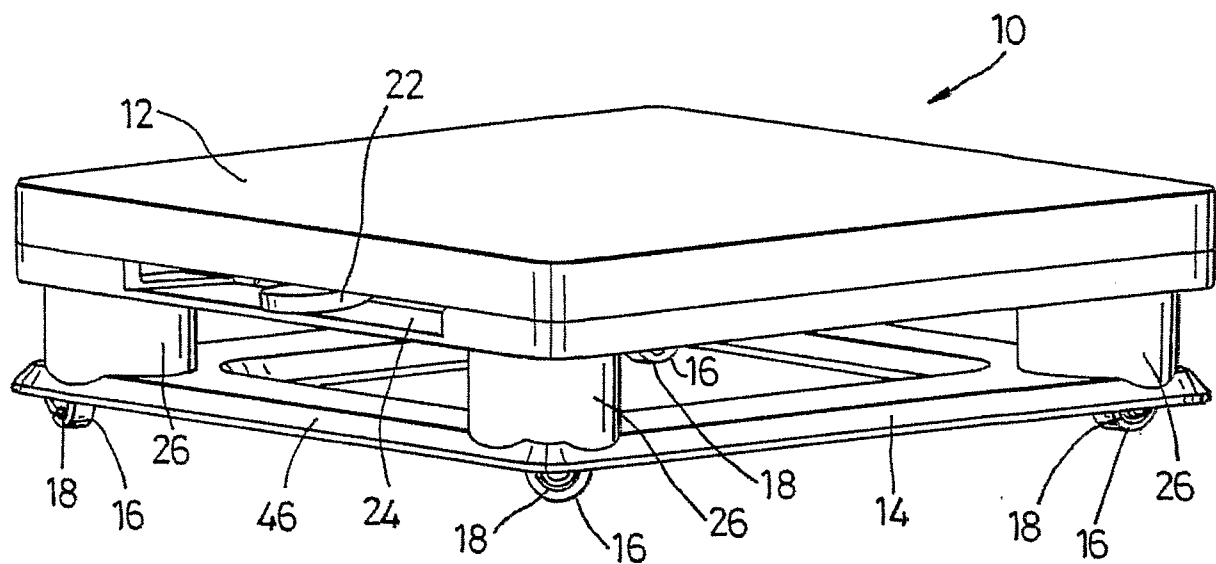


Fig. 1(b)

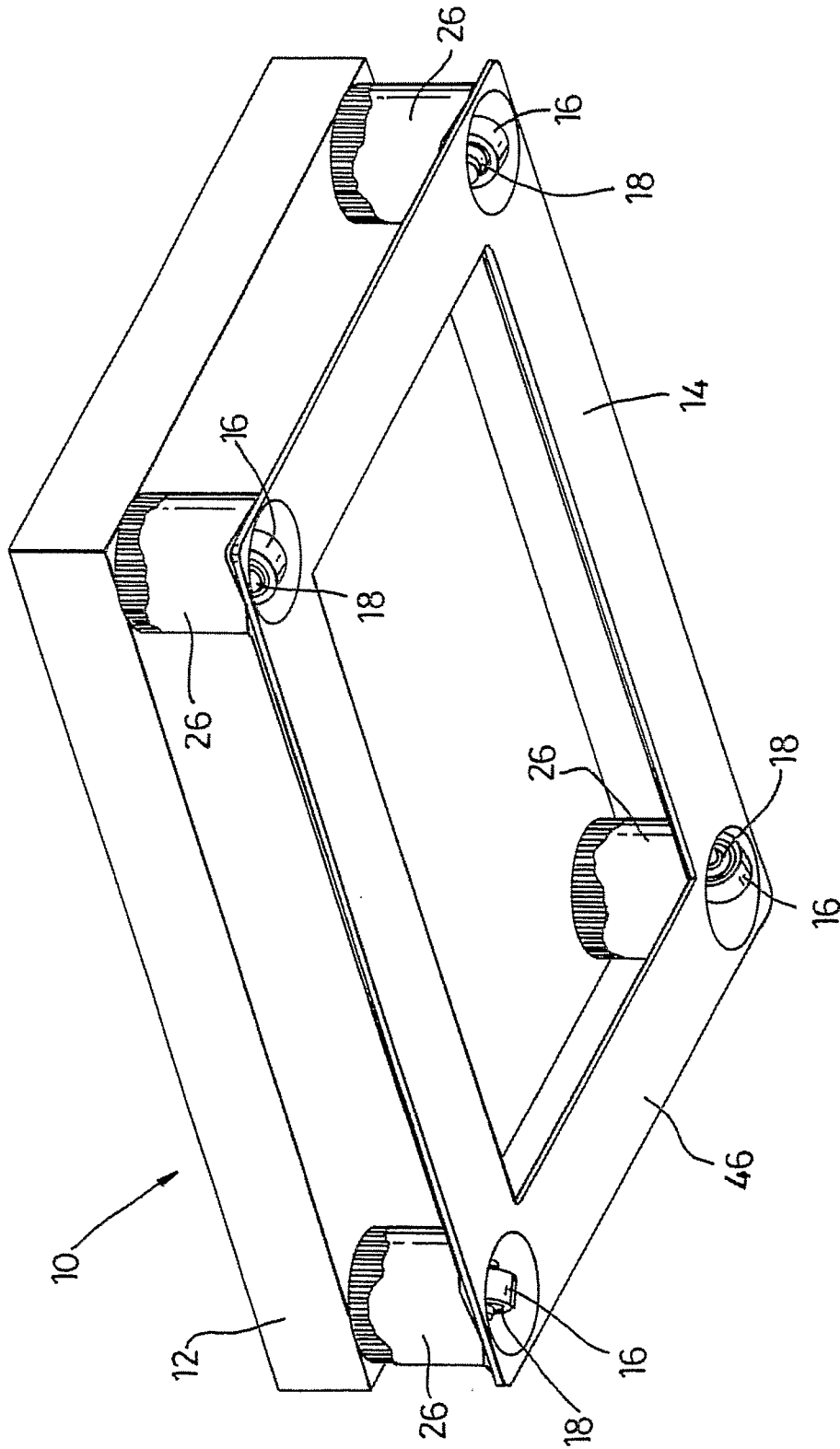
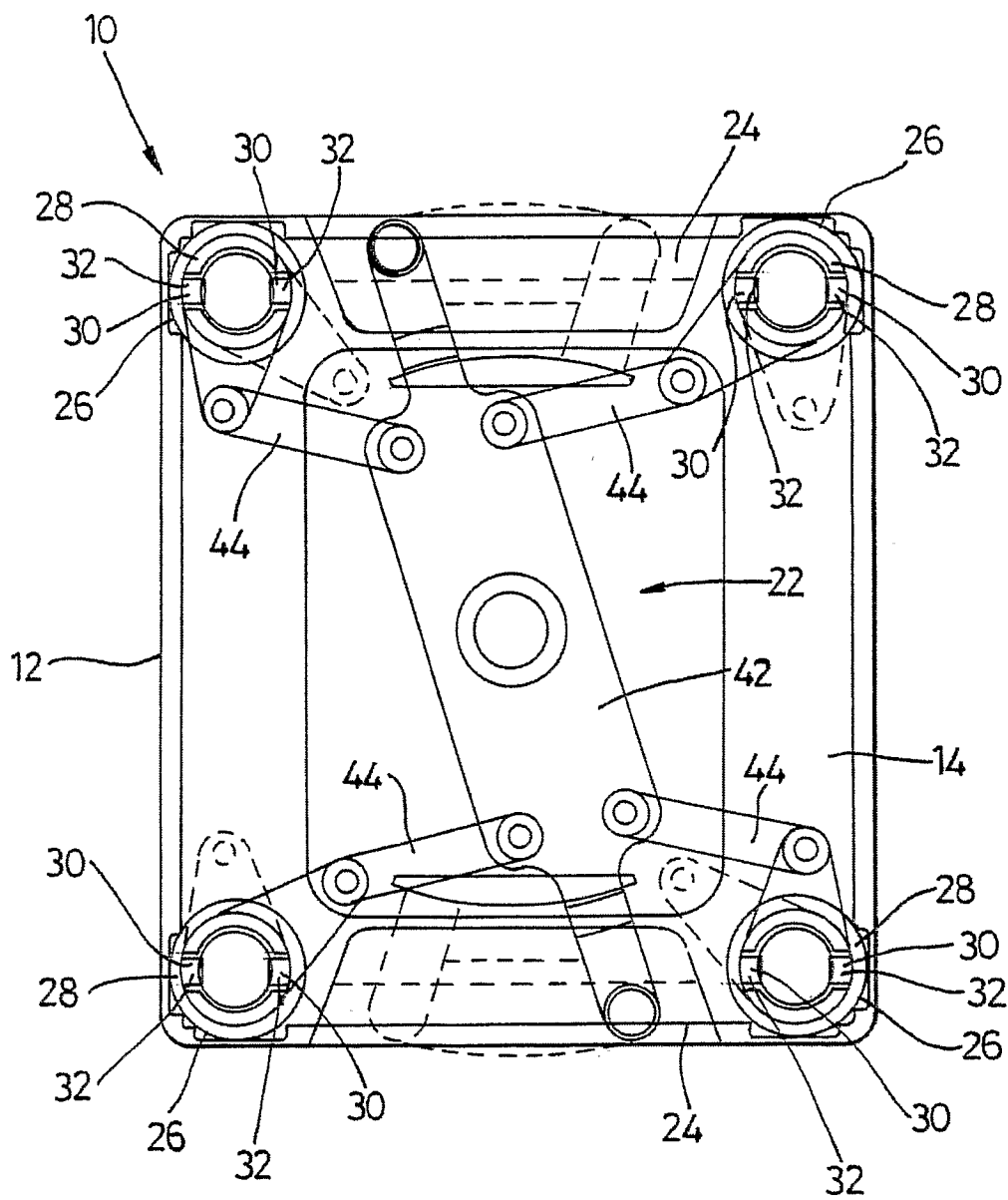
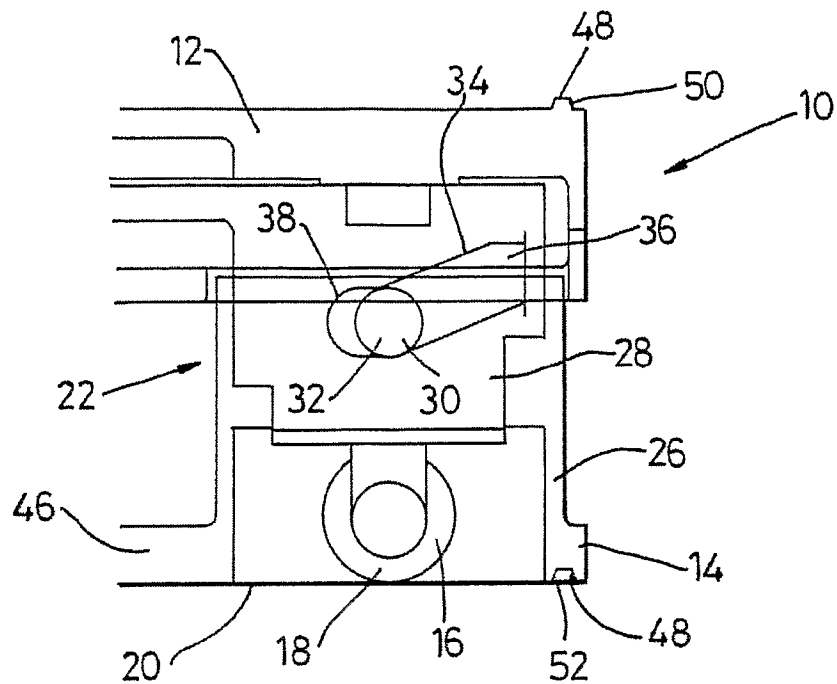
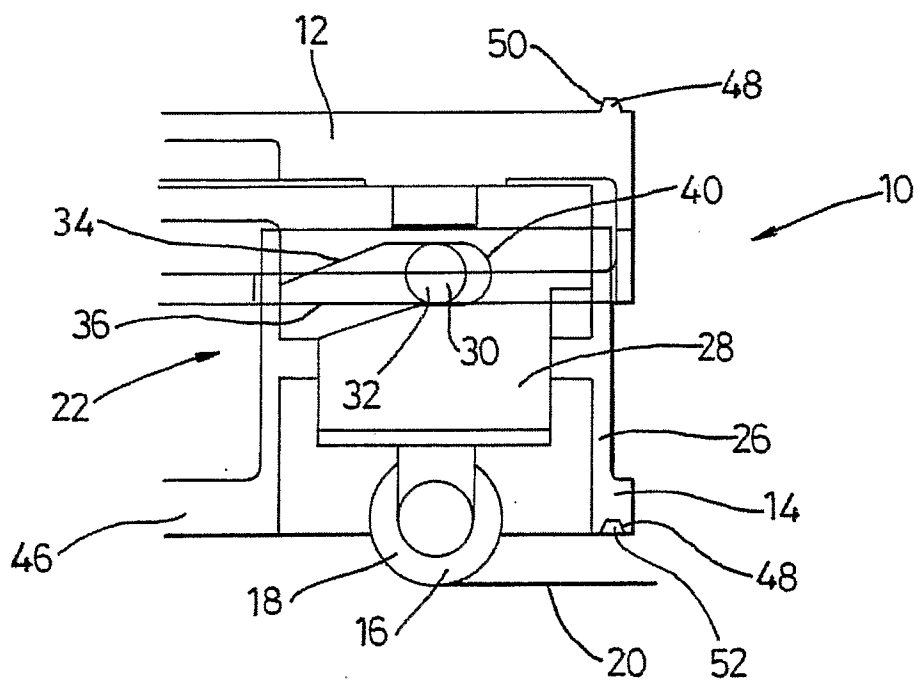


Fig. 2

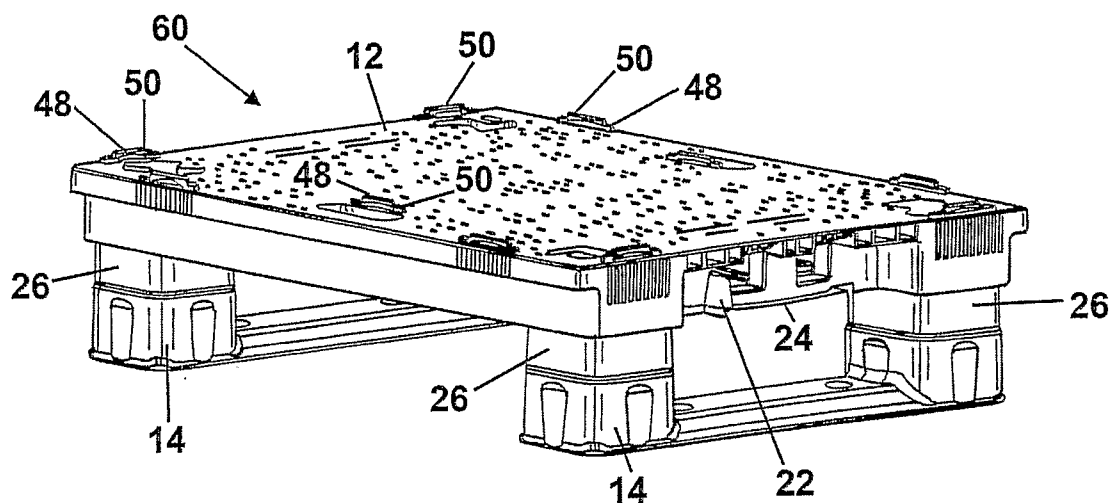
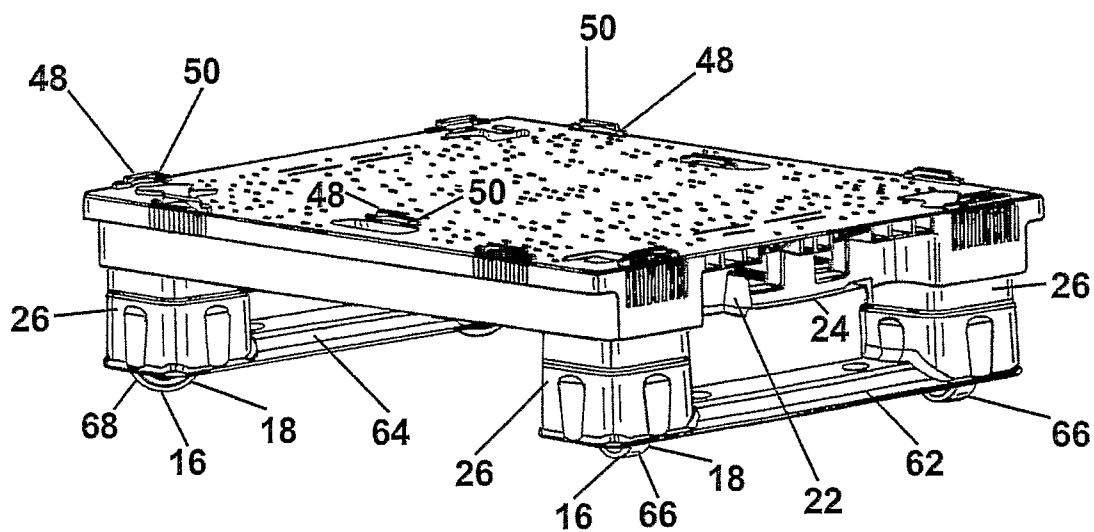
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**Fig. 3**

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**Fig. 4(a)****Fig. 4(b)**

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*Fig. 5(a)**Fig. 5(b)*

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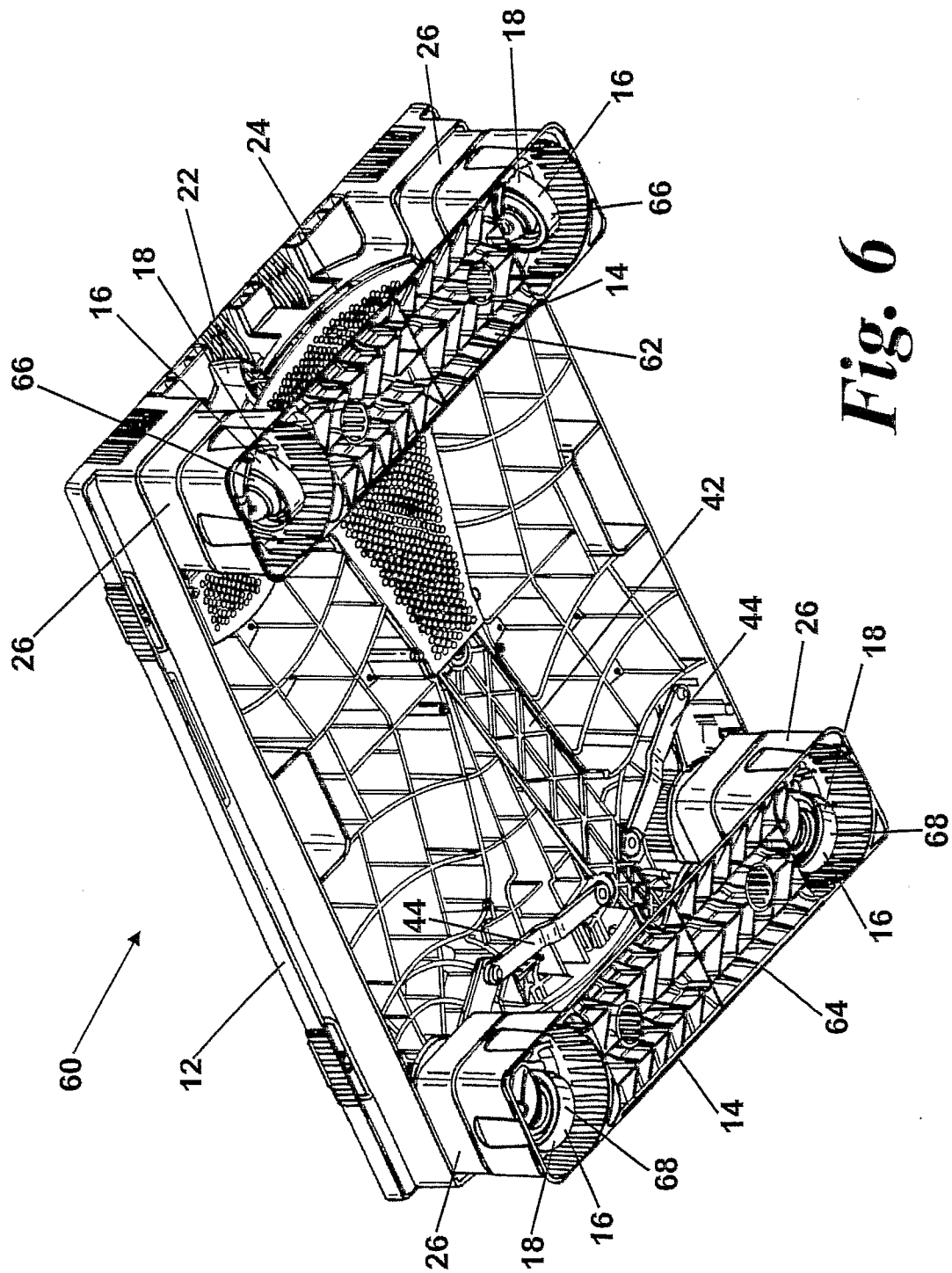


Fig. 6

INTERNATIONAL SEARCH REPORT

International application No

PCT/GB2007/001149

A. CLASSIFICATION OF SUBJECT MATTER
INV. B65D19/42

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)

B65D B62B

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 practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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Y	column 3, line 33 - column 5, line 6; figures 1-5	6,7,11, 15,16
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Y	column 3, line 20 - column 5, line 37; figures 1-10	6,7,11, 15,16
X	US 3 422 929 A (OJA CARL W ET AL) 21 January 1969 (1969-01-21)	1,2,4
Y	column 2, line 50 - column 6, line 48; figures 1-5	6,7,11, 15,16
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☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

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Date of the actual completion of the international search

5 July 2007

Date of mailing of the international search report

16/07/2007

Name and mailing address of the ISA/

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Fitterer, Johann

INTERNATIONAL SEARCH REPORT

International application No

PCT/GB2007/001149

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

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INTERNATIONAL SEARCH REPORT

Information on patent family members

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