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(54) **Pallet with wheels**

Palette mit Rädern

Palette à roulettes

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Description

[0001] This invention relates to a pallet for use in particular, but not exclusively, for the storage, transportation and retail of goods.

[0002] A conventional pallet includes a deck which supports the goods and a skid which extends completely around the perimeter of the pallet.

[0003] 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.

[0004] 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.

[0005] EP 0 666 208 discloses a transport car that includes a pair of engagement members which are selectively engagable with a support surface to inhibit movement of the transport car relative to the support surface. Such a car is, however, ill-suited to use with the tines of a lifting device.

[0006] According to the invention there is provided a pallet comprising:

> a deck having a plurality of rotatable members 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
> characterised in that the engagement member includes a plurality of sleeves each of which extends around a given rotatable member.

[0007] The inclusion of a plurality of rotatable members 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.

[0008] 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.

[0009] 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.

[0010] 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.

[0011] 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 positioned adjacent to one or more other objects.

[0012] 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 positions. In this way movement of the actuator is conveniently translated into movement of the engagement member.

[0013] Preferably the or each actuation member is rotatable relative to the corresponding sleeve. This provides a compact arrangement, as well as providing an operative with a degree of mechanical advantage.

[0014] 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.

[0015] Optionally the first member is a spigot and the second member is a profiled slot.

[0016] The foregoing features provide a convenient and compact way of moving the engagement member between the first and second positions.

[0017] 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.

[0018] 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.

[0019] Conveniently the engagement member defines a skid member extending along a perimeter of the pallet as defined by the perimeter of the deck.

[0020] The engagement member may also include first and second skid members, each skid member extending along one side of the pallet.

[0021] 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 each rotatable member and the engagement member when the engagement member is in the first position.

[0022] 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.

[0023] 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.

[0024] 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.

[0025] 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;

[0026] 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.

[0027] 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 number of rotatable members 16.

[0028] 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 second position the engagement member 14 is spaced from the support surface 20, as shown in Figure 1(b).

[0029] 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 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.

[0030] 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 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.

[0031] Each sleeve 26 includes two first members 30 in the form of a spigot 32 and each 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.

[0032] Each profiled slot 36 defines a first and second retaining portion 38, 40.

[0033] Other interengagable members, arrangements and configurations are also possible.

[0034] As can best be seen in Figure 3, the actuator 22 includes a lever 42 which is 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.

[0035] 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 trolley.

[0036] 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 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.

[0037] 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.

[0038] 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 be arranged differently.

[0039] 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 are rotatable about an, in-use, vertically extending axis. Such an arrangement imbues the second pallet 60 with a controllable steering functionality.

[0040] Such a castor arrangement may also be adopted in other embodiments of the invention including in the first pallet 10 described above.

[0041] 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 steer the pallet 60 while the engagement member 14 is in the second position.

[0042] 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.

[0043] 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 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.

[0044] 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 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.

[0045] 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.

[0046] 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 locking the engagement member 14 in the second position.

[0047] 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.

Claims

1. A pallet (10) comprising:

   a deck (12) having a durality of rotatable members (16) secured thereto so as to enable the pallet (10) to move on a support surface (20); and

   an engagement member (14) moveable relative to the deck (12) betweesn 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, **characterised in that** the engagement member (14) includes a plurality of sleeves (26) each of which extends around a given rotatable member (16).

2. A pallet (10) accordrng to Claim 1 further including an actuator (22) for moving the engagement member (14) between the first and second positions.

3. A pallet (10) according to Claim 2 wherein the actuator (22) is substantially housed within the deck (12).

4. A pallet (10) according to Claim 2 or Claim 3 wherein the actuator (22) is accessible from at least two sides of the pallet (10).

5. A pallet (10) according to any of claims 2 to 4, wherein the actuator (22) includes at least one actuation member (28), the or each actuation member (28) corresponding to a given sleeve (26) and being moveable relative thereto so as to move the engage-

ment member (14) between the first and second positions.

6. A pallet (10) according to Claim 5 wherein the or each actuation member (28) is rotatable relative to the corresponding sleeve (26).

7. A pallet (10) according to Claim 6 wherein the or each actuation member (28) and corresponding sleeve (26) include mutually interengagable first and second members (30,34) which translate rotational movement of the or each actuation member (28) into linear movement of corresponding sleeve (26).

8. A pallet (10) according to Claim 7 wherein the first member (30) is a spigot (32) and the second member (34) is a profiled slot (36).

9. A pallet (10) according to claim 8 wherein the profiled slot (36) defines first and second retaining portions (38,40) each corresponding to the respective first and second position of the engagement member (14).

10. A pallet (10) according to any of claims 5 to 9 wherein the actuator (22) further includes a lever (42) pivotally connected to the deck (12) and moveably connected with the or each actuation member (28).

11. A pallet (10) according to any preceding claim wherein the engagement member (14) defines a skid member (46) extending along a perimeter of the pallet (10) as defined by the perimeter of the deck (12).

12. A pallet (10) according to any of Claims 1 to 10 wherein the engagement member (14) includes first and second skid members (46), each skid member extending along one side of the pallet.

13. A pallet (10) according to Claim 11 or Claim 12 wherein the or each skid member (46) is spaced from the deck (12) in at least the first position.

14. A pallet (10) according to any preceding claim wherein the pallet (10) includes four rotatable members (16), and a corresponding number of sleeves (26) and actuation members (28).

15. A pallet (10) according to any preceding claim wherein each of the deck (12) and the engagement member (14) includes at least one interengagable location formation (48) for locating one pallet relative to another such pallet when stacked one on top of another.

16. A pallet (10) according to any preceding claim further including a mechanical handle.

Patentansprüche

1. Eine Palette (10) mit:

einem Deck (12) mit mehreren drehbaren Elementen (16), die daran so festgelegt sind, daß sie eine Bewegung der Palette (10) auf einer Tragoberfläche (20) ermöglichen, und
einem Eingriffselement (14), das relativ zu dem Deck (12) zwischen einer ersten Position, in welcher es mit der Tragoberfläche (20) in Eingriff bringbar ist, um eine Bewegung der Palette (10) relativ dazu zu verhindern, und einer zweiten Position, in welcher es von der Tragoberfläche (20) beabstandet ist, um eine Bewegung der Palette (10) relativ dazu zu ermöglichen, bewegbar ist,
dadurch gekennzeichnet, daß das Eingriffselement (14) mehrere Hülsen (26) aufweist, von denen jede sich um ein bestimmtes drehbares Element (16) herum erstreckt.

2. Eine Palette (10) gemäß Anspruch 1, ferner mit einem Betätiger (22) zum Bewegen des Eingriffselements (14) zwischen den ersten und zweiten Positionen.

3. Eine Palette (10) gemäß Anspruch 2, wobei der Betätiger (22) im wesentlichen in dem Deck (12) aufgenommen ist.

4. Eine Palette (10) gemäß Anspruch 2 oder Anspruch 3, wobei der Betätiger (22) von mindestens zwei Seiten der Palette (10) zugänglich ist.

5. Eine Palette (10) gemäß einem der Ansprüche 2 bis 4, wobei der Betätiger (22) mindestens ein Betätigungselement (28) aufweist, wobei das oder die Betätigungselement(e) (28) einer bestimmten Hülse (26) entsprechen und relativ zu dieser so bewegbar sind, daß das Eingriffselement (14) zwischen den ersten und zweiten Positionen bewegt wird.

6. Eine Palette (10) gemäß Anspruch 5, wobei das oder jedes Betätigungselement (28) relativ zu der entsprechenden Hülse (26) drehbar ist.

7. Eine Palette (10) gemäß Anspruch 6, wobei das oder jedes Betätigungselement (28) und die entsprechende Hülse (26) gegenseitig in Eingriff bringbare erste und zweite Elemente (30,34) aufweisen, welche eine Rotationsbewegung des oder jedes Betätigungselements (28) in eine Linearbewegung der entsprechenden Hülse (26) umsetzen.

8. Eine Palette (10) gemäß Anspruch 7, wobei das erste Element (30) ein Zapfen (32) und das zweite Element (34) ein profilierter Schlitz (36) ist.

9. Eine Palette (10) gemäß Anspruch 8, wobei der profilierte Schlitz (36) erste und zweite Halteabschnitte (38,40) definiert, die jeweils den jeweiligen ersten und zweiten Positionen des Eingriffselements (14) entsprechen.

10. Eine Palette (10) gemäß irgendeinem der Ansprüche 5 bis 9, wobei der Betätiger (22) ferner einen Hebel (42) aufweist, der schwenkbar mit dem Deck (12) verbunden und bewegbar mit dem oder jedem Betätigungselement (28) verbunden ist.

11. Eine Palette (10) gemäß irgendeinem vorstehenden Anspruch, wobei das Eingriffselement (14) ein Gleitelement (46) definiert, das sich entlang einem Umfang der Palette (10), der durch den Umfang des Decks (12) definiert ist, erstreckt.

12. Eine Palette (10) gemäß irgendeinem der Ansprüche 1 bis 10, wobei das Eingriffselement (14) erste und zweite Gleitelemente (46) aufweist, wobei jedes Gleitelement sich entlang einer Seite der Palette erstreckt.

13. Eine Palette (10) gemäß Anspruch 11 oder Anspruch 12, wobei das oder jedes Gleitelement (46) von dem Deck (12) zumindest in der ersten Position beabstandet ist.

14. Eine Palette (10) gemäß irgerndeinem vorstehenden Anspruch, wobei die Palette (10) vier drehbare Elemente (16) und eine entsprechende Anzahl von Hülsen (21) und Betätigungselementen (28) aufweist.

15. Eine Palette (10) gemäß irgendeinem vorstehenden Anspruch, wobei jedes Deck (12) und Eingriffselement (14) mindestens eine in Eingriff bringbare Anordnungsformation (48) zum Anordnen einer Palette relativ zu einer anderen solchen Palette, wenn sie aufeinandergestapelt sind, aufweist.

16. Eine Palette (10) gemäß irgendeinem vorstehenden Anspruch, ferner mit einem mechanischen Griff.

Revendications

1. Palette (10) comprenant :

un plancher (12) ayant une pluralité d'organes rotatifs (16) fixés à celui-ci de manière à permettre à la palette (10) de se déplacer sur une surface de support (20) ; et
un organe de mise en prise (14) mobile par rapport au plancher (12) entre une première position dans laquelle il peut être mis en prise avec la surface de support (20) de manière à inhiber le mouvement de la palette (10) par rapport à celle-ci, et une seconde position dans laquelle il est espacé de la surface de support (20) de manière à permettre le mouvement de la palette (10) par rapport à celle-ci,
caractérisée en ce que l'organe de mise en prise (14) inclut une pluralité de manchons (26) qui s'étendent chacun autour d'un organe rotatif (16) donné.

2. Palette (10) selon la revendication 1, incluant en outre un actionneur (22) pour déplacer l'organe de mise en prise (14) entre les première et seconde positions.

3. Palette (10) selon la revendication 2, dans laquelle l'actionneur (22) est sensiblement logé au sein du plancher (12).

4. Palette (10) selon la revendication 2 ou la revendication 3, dans laquelle l'actionneur (22) est accessible depuis au moins deux côtés de la palette (10).

5. Palette (10) selon l'une quelconque des revendications 2 à 4, dans laquelle l'actionneur (22) inclut au moins un organe d'actionnement (28), l'organe ou chaque organe d'actionnement (28) correspondant à un manchon (26) donné et étant mobile par rapport à celui-ci de manière à déplacer l'organe de mise en prise (14) entre les première et seconde positions.

6. Palette (10) selon la revendication 5, dans laquelle l'organe ou chaque organe d'actionnement (28) peut tourner par rapport au manchon (26) correspondant.

7. Palette (10) selon la revendication 6, dans laquelle l'organe ou chaque organe d'actionnement (28) et le manchon (26) correspondant incluent des premier et second organes (30, 34) pouvant mutuellement venir en prise ensemble, qui transforment un mouvement de rotation de l'organe ou de chaque organe d'actionnement (28) en un mouvement linéaire du manchon (26) correspondant.

8. Palette (10) selon la revendication 7, dans laquelle le premier organe (30) est un ergot (32) et le second organe (34) est une fente profilée (36).

9. Palette (10) selon la revendication 8, dans laquelle la fente profilée (36) définit des première et seconde portions de retenue (38, 40) correspondant chacune aux première et seconde positions respectives de l'organe de mise en prise (14).

10. Palette (10) selon l'une quelconque des revendications 5 à 9, dans laquelle l'actionneur (22) inclut en outre un levier (42) raccordé de façon pivotante au plancher (12) et raccordé de façon mobile à l'organe

d'actionnement ou à chaque organe d'actionnement (28).

11. Palette (10) selon l'une quelconque des revendications précédentes, dans laquelle l'organe de mise en prise (14) définit un organe de patin (46) s'étendant suivant un périmètre de la palette (10) tel que défini par le périmètre du plancher (12).

12. Palette (10) selon l'une quelconque des revendications 1 à 10, dans laquelle l'organe de mise en prise (14) inclut des premier et second organes de patin (46), chaque organe de patin s'étendant suivant un côté de la palette.

13. Palette (10) selon la revendication 11 ou la revendication 12, dans laquelle l'organe ou chaque organe de patin (46) est espacé du plancher (12) dans au moins la première position.

14. Palette (10) selon l'une quelconque des revendications précédentes, dans laquelle la palette (10) inclut quatre organes rotatifs (16) et un nombre correspondant de manchons (26) et d'organes d'actionnement (28).

15. Palette (10) selon l'une quelconque des revendications précédentes, dans laquelle chacun du plancher (12) et de l'organe de mise en prise (14) inclut au moins une formation de positionnement pouvant être mise en prise (48) pour positionner une palette par rapport à une autre palette identique lorsqu'elles sont empilées l'une sur l'autre.

16. Palette (10) selon l'une quelconque des revendications précédentes, incluant en outre une poignée mécanique.

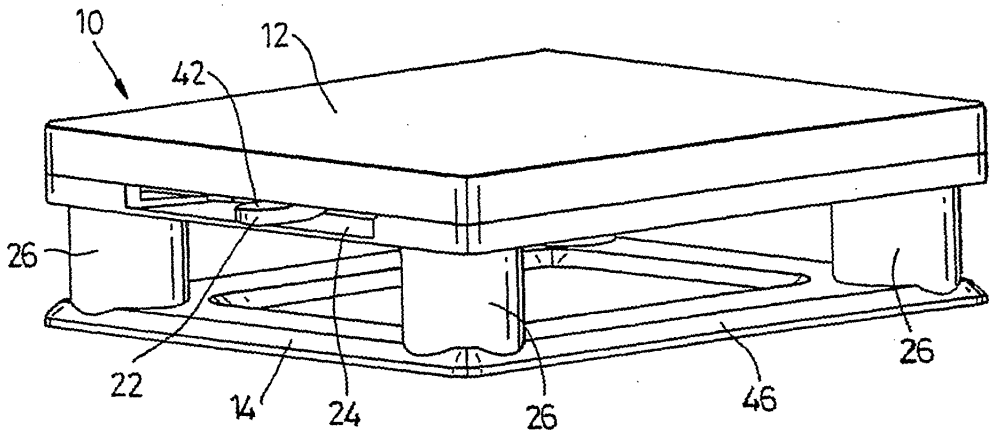
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Fig. 1(a)

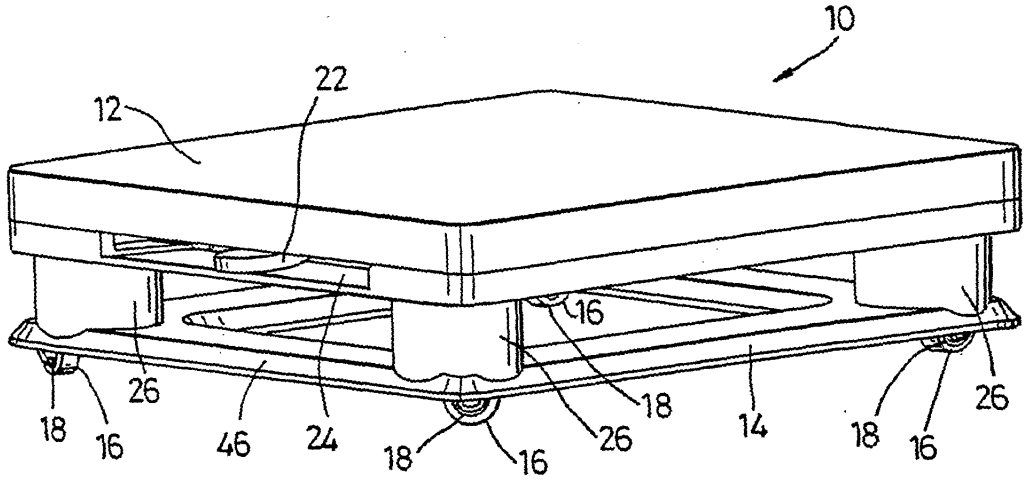
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Fig. 1(b)

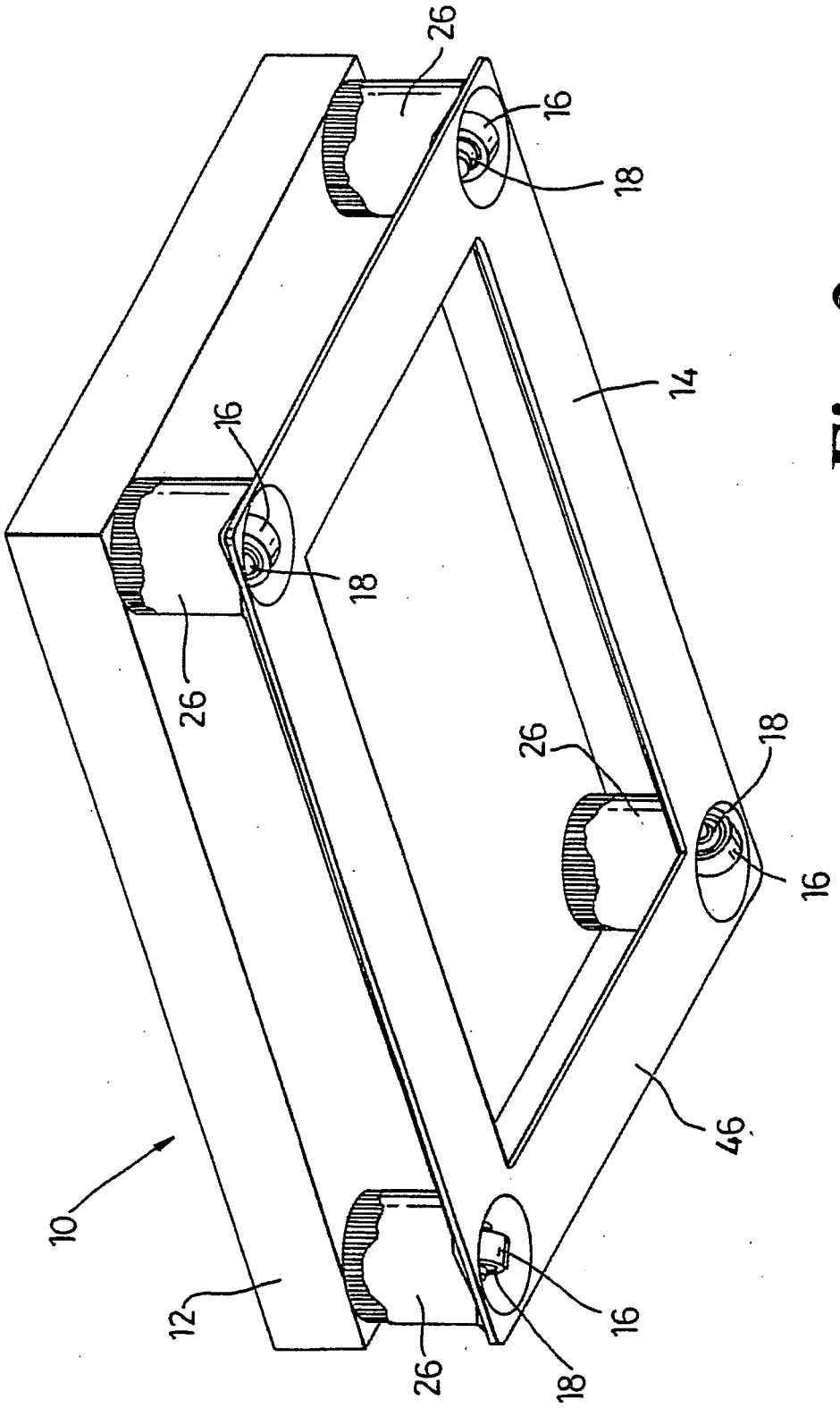

Fig. 2

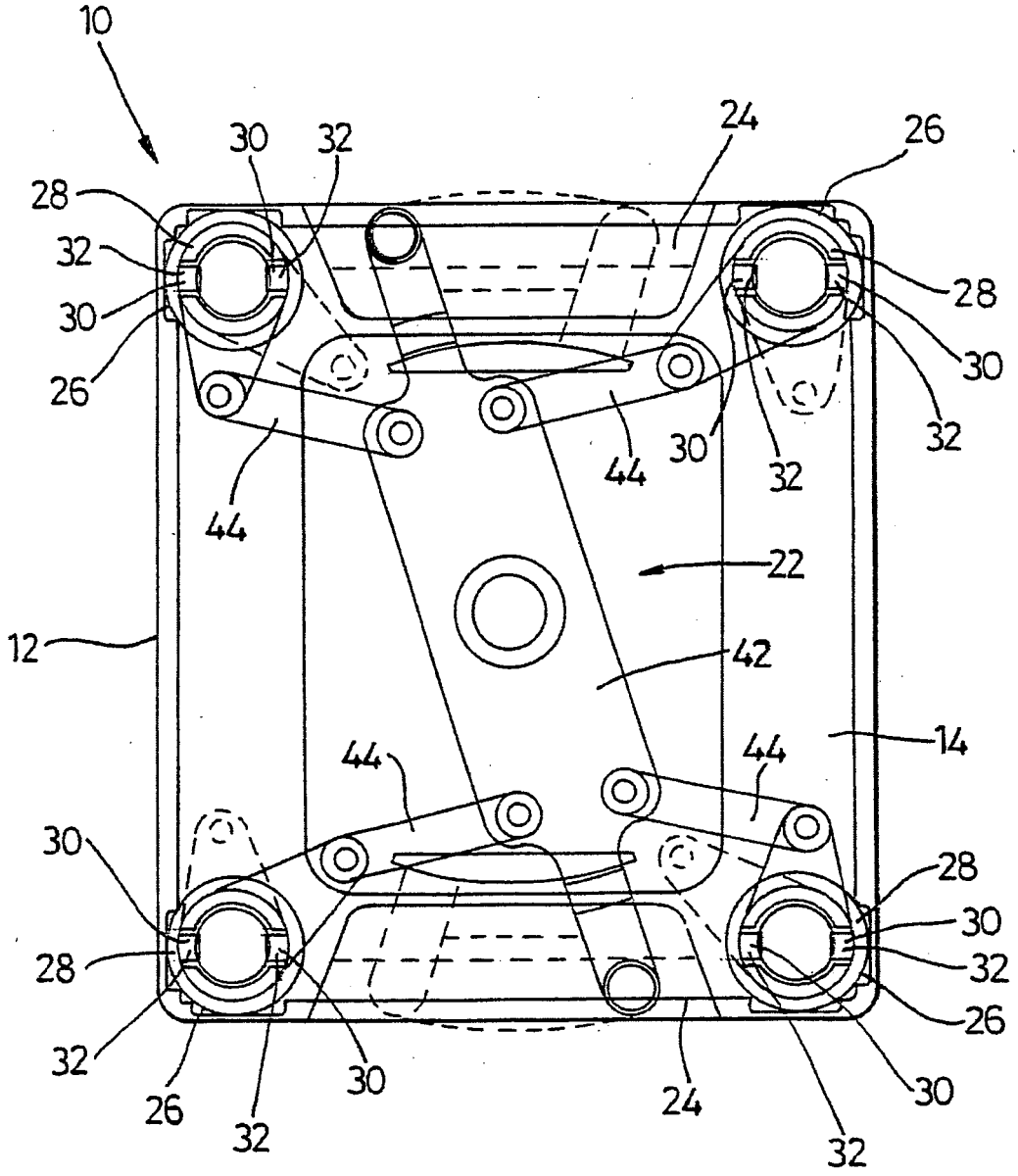
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Fig. 3

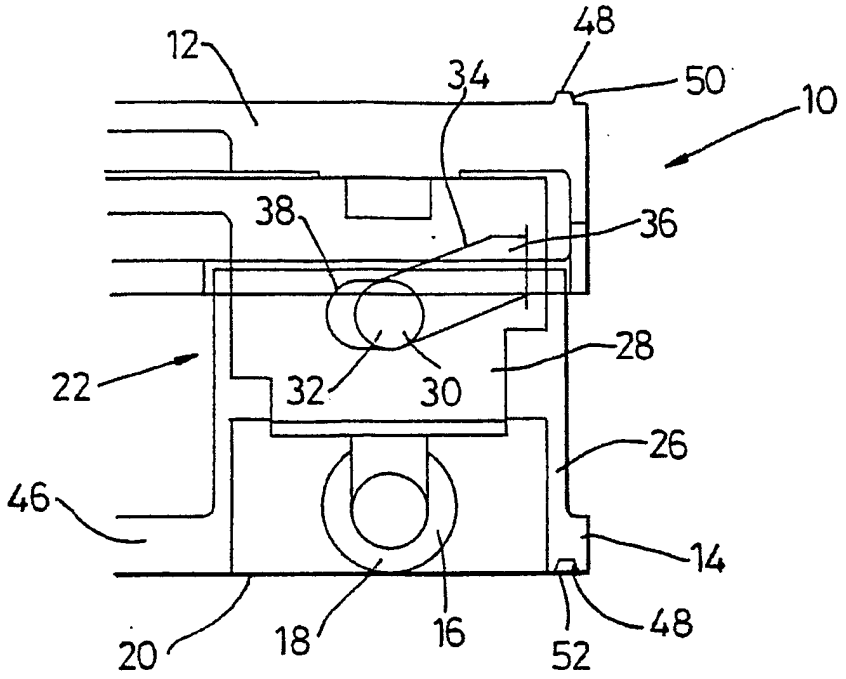
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Fig. 4(a)

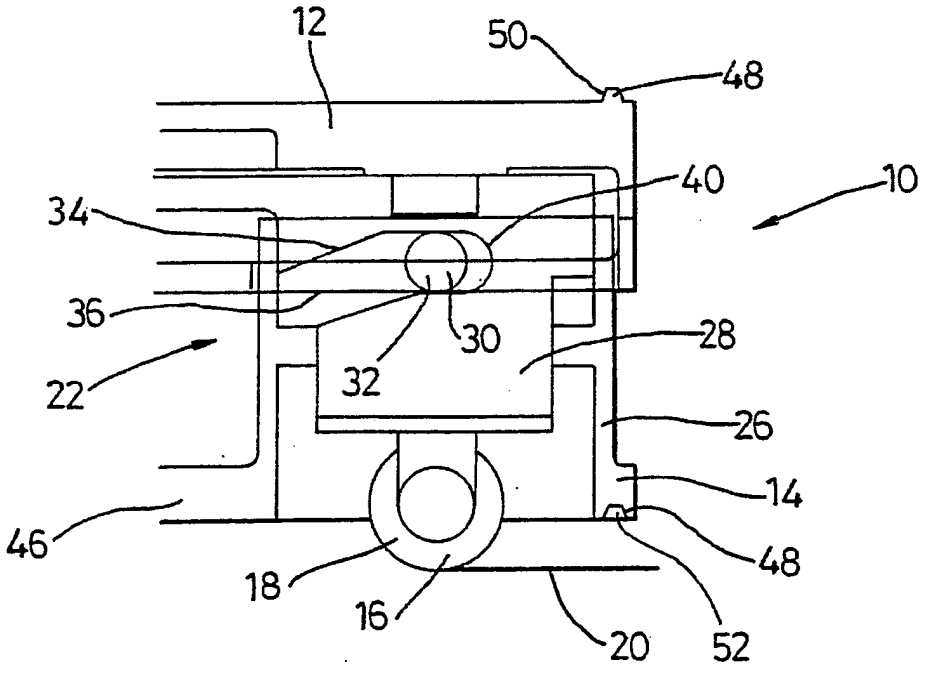
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Fig. 4(b)

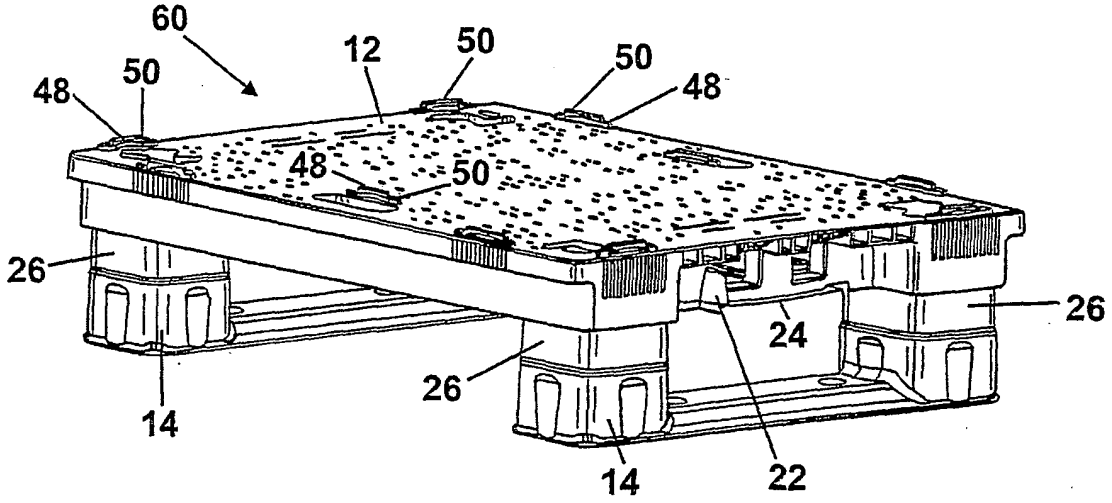
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Fig. 5(a)

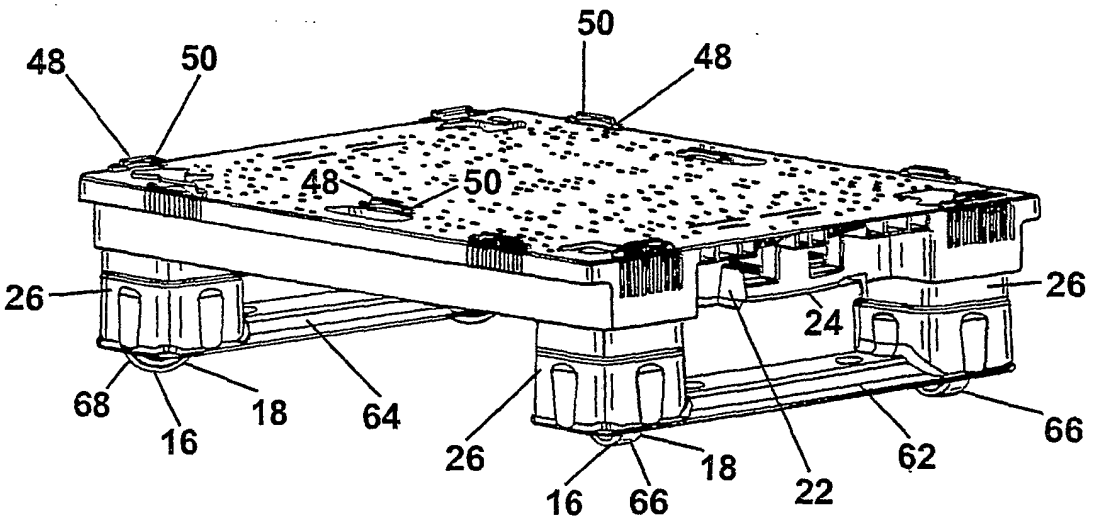
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Fig. 5(b)

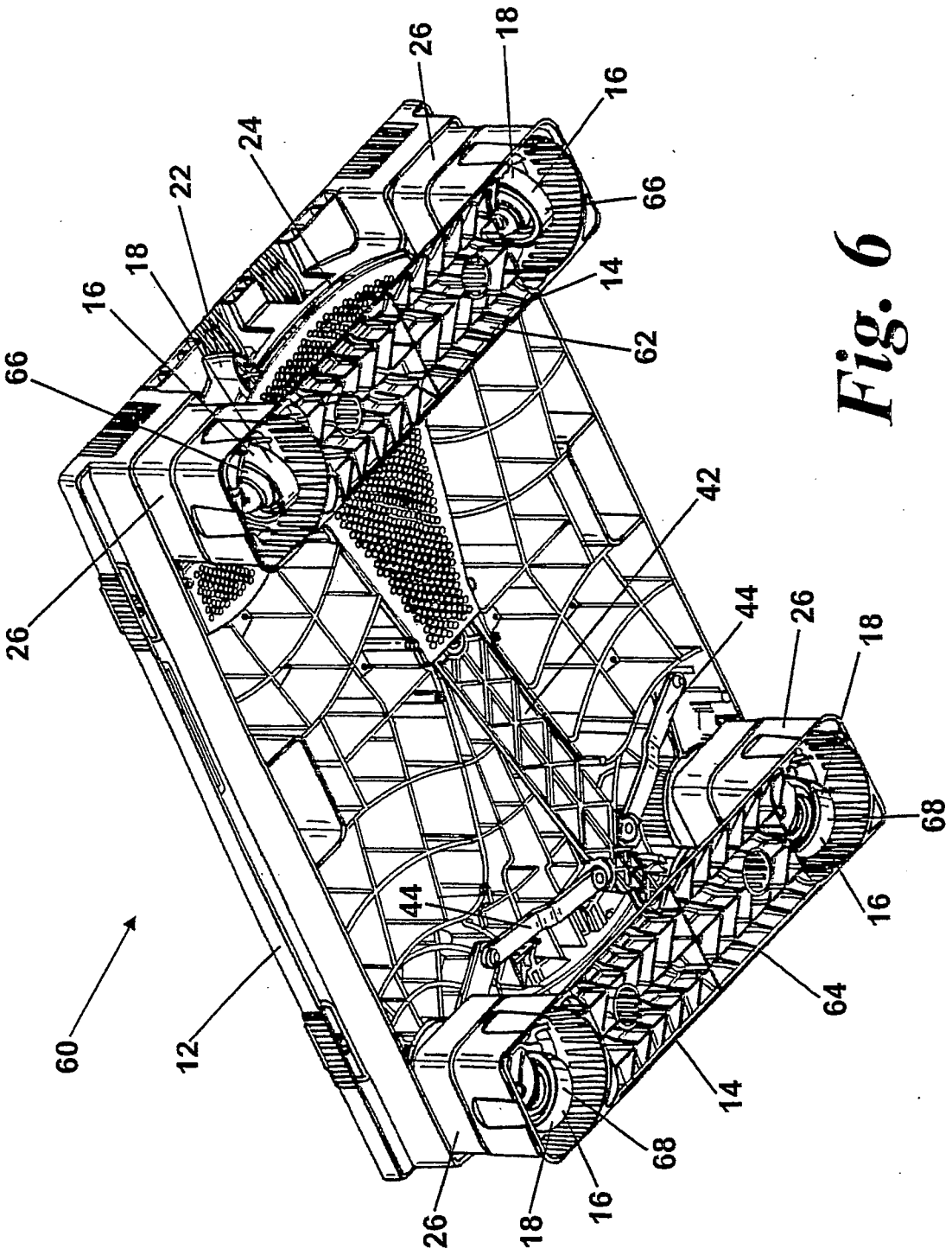
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Fig. 6

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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