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(54) **LIFT-TRUCK**

HUBWAGEN

CHARIOT ELEVATEUR

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- **PATENT ABSTRACTS OF JAPAN vol. 001, no. 051 (M-019), 18 May 1977 (1977-05-18) -& JP 52 002948 A (TOYO UMPANKI CO LTD), 11 January 1977 (1977-01-11)**

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Description

[0001] The present invention relates to a transporter for transporting materials between a material carrier and a material destination on a freight carrier such as a truck, comprising such a transporter, and to a method for delivering goods at a busy destination difficult to access, such as a busy shopping street.

[0002] An ever increasing problem is the delivery of goods to shops which are situated in shopping streets which are busy and difficult to reach with a truck and which are not provided with sufficient parking and loading/unloading areas.

[0003] The United States patent specification US 4,613,272 discloses a motorised floor truck operable to place a load on an elevated surface and to elevate itself to that elevated surface. Together with a supporting assembly this truck is capable of lifting itself into a material carrier or truck. This enables transportation of the motorised floor truck by the material carrier or truck. A disadvantage of this configuration is that the motorised floor truck and the supporting assembly take space during transport of goods in the truck.

[0004] An object of the present invention is to alleviate this problem.

[0005] A first aspect of the present invention provides a material carrier including a transporter for transporting material between said material carrier, such as a truck, and a material destination for instance a shop situated at a busy location which is difficult to access, wherein the transporter comprises:

- a frame part,
- a support platform which is displaceable upward and downward relative to the frame part between an elevated position and a lowered position, characterised in that
- a floor of said material carrier is provided with a recess substantially vertically accessible, and
- the support platform corresponds to a peripheral profile of the recess so that at least a part of the upper surface of the support platform serves as a part of the floor of the material carrier.

[0006] A device according to the present invention offers optimised loading space of the material carrier.

[0007] A truck provided with a transporter according to the present invention thus need no longer stand in front of the door of a shop with difficult access during loading and unloading which, in addition to the problem of reaching the shop and finding a parking space, often causes traffic jams. The truck can now park in a general parking area, whereafter the transporter can be loaded with goods and then disconnected from the truck and the goods can be taken to the final destination on the transporter itself.

[0008] The platform of the transporter is preferably provided with one or more wheels, which wheels are mounted on the transporter so as to be foldable between a storage, non-use position and a position of use.

[0009] As the platform is provided with wheels, it is easy to manage and operate.

[0010] The platform preferably has a form such that it can fit in a recess of a floor of a larger material carrier such as a truck, wherein the platform can serve as a part of the floor of the carrier when fixed thereto.

[0011] Since the platform can serve as a part of the floor of a truck, it is very easy to carry goods from the truck onto the platform.

[0012] The support platform can take a form such that it can fit into and be removed from a pallet opening, whereby loading and unloading of the goods placed on the pallet is facilitated.

[0013] Further features of the present invention are stated in claims 5-12.

[0014] A second aspect of the present invention relates to a freight carrier comprising the above stated transporter, as according to claims 13-15.

[0015] With such a freight carrier larger quantities of cargo can be transported to a parking space, whereafter the cargo can be displaced by means of the transporter between the parking space and the shop difficult to access with a truck.

[0016] A third aspect of the present invention relates to a method for delivering goods using the above stated freight carrier, comprising the steps of driving the freight carrier to a parking area suitable for the purpose, placing the goods to be unloaded on the platform of the transporter, displacing the fork elements of the transporter downward until they come into contact with the ground, removing the transporter from the carrier opening, displacing the transporter platform downward and folding out the wheels thereof to their position of use, whereafter the transporter and the goods can be displaced to the desired location.

[0017] A further aspect of the present invention relates to a method of transporting involving a material carrier such as a truck, a transporter as described and a third means of transport, such as a hand pallet truck, wherein cargo is driven out of a loading space of the carrier onto the platform of the transporter, whereafter the transporter with the cargo and the third means of transport are displaced, whereafter the cargo is driven off the platform with the third means of transport, and vice versa.

[0018] The third means of transport and/or the transporter can further be provided with securing means.

[0019] If provided with securing means, the third means of transport can be used to enclose the cargo at the rear side of the platform, so that during use of the transporter the cargo cannot fall off at the rear.

[0020] The present invention will now be described on the basis of the description hereinbelow which makes reference to the figures, in which:

figure 1 shows a perspective view of a preferred em-

bodiment of the transporter according to the present invention;
figure 2 is a perspective view of a freight carrier plus transporter according to the present invention;
figure 3 shows a further partly cut-away perspective view of the transporter of figure 1;
figures 4 and 5 show partly cut-away perspective views of the transporter and truck according to the present invention during unloading of a pallet;
figure 6 is a perspective view of the transporter fixed to a truck;
figure 7 is a perspective view of a freight carrier plus another embodiment of the transporter according to the present invention;
figures 8 and 9 show further partly cut-away perspective views of the transporter, wherein this latter is enclosed in a truck;
figure 10 is a perspective view of a further embodiment of the transporter according to the present invention; and
figures 11 and 12 show partly cut-away perspective views of the releasable locking mechanism for releasably locking the transporter to for instance a truck.

[0021] A transporter according to figure 1 comprises a frame part 2, a housing 4 in which a motor (not shown) is housed, an upright displaceable carrier 6, a support platform 8 which is mounted on the carrier, two forks 10 extending from housing 4, which forks 10 are provided with rollers 12 at the front end thereof, two rear wheels 14 and a steering column 16.

[0022] Platform 8 is provided on a front end with a pivotable flap 18. Platform 8 is also provided with two fold-away wheels 20 which are mounted in wheel suspensions 22 which are in turn arranged pivotally in two length profiles 24 under platform 8.

[0023] A hydraulic piston rod mechanism 26 extends from beneath platform 8 and is arranged on a front end thereof below flap 18.

[0024] Carrier 6 is displaceable up and downward in frame part 2 whereby platform 8 is also displaceable up and downward.

[0025] In its lowered position the platform 8 makes contact with the surface of forks 10 (see figure 3). In this position the platform wheels 20 are folded away. If the piston rod is retracted, as in figure 3, the front end of flap 18 can touch the ground, in order to provide an easy transition between the ground and platform 8.

[0026] In its extended position the piston rod 26 ensures that flap 18 is in line with the platform (see figure 1).

[0027] In a position which is not shown, platform wheels 20 can come into contact with the ground in their folded-down position when the platform is in its lowered position, wherein wheels 20 serve as front wheels of transporter 1. In this situation the rollers 12 of forks 10 are no longer in contact with the ground.

[0028] Platform 8 and front flap 18 have a profile which fits into a recess 26 of floor 28 of the container space 30 of a truck 32 (see figures 2 and 4).

[0029] Transporter 1 can be fixed to the rear side of truck 32 by means of fixing means (not shown). In this fixed position the platform 8 and forks 10 engage the rear side 34 of truck 32. In this fixed state (figure 6) the transporter 1 is displaceable by means of the truck.

[0030] The container opening of the truck can be closed in this situation (see figure 6).

[0031] During use the truck and transporter can be driven to a parking area.

[0032] The rear side of the truck can then be opened, whereafter forks 10, rear wheels 14, housing 4, steering column 16 and frame part 2 of transporter 1 are lowered so that rear wheels 14 and front rollers 12 of forks 10 come into contact with the ground (see figure 4). A pallet truck 38 situated in the container space 30 of truck 32 can then be driven onto the platform 8 of the transporter.

[0033] Transporter 1 can then be manoeuvred away from truck 32 (see figure 5), whereafter wheels 20 of platform 8 can be folded down, platform 8 can be lowered and the transporter plus pallet truck 38 can be taken to their destination.

[0034] The embodiment shown in figure 7 has two upper forks 50 which are separated. A pallet can thus be directly loaded herewith. The pivotable wheels are here mounted on forks 50, wherein a platform is pushed over the fork parts (and hooked on or otherwise fixed) as if it were a pallet.

[0035] It is then possible to utilize the platform and the transporter separately.

[0036] The platform can be used to cover the recess in the loading floor of the truck at floor level, even if the transporter is not being transported or if the transporter delivers a pallet directly on the forks.

[0037] The transporter with upper forks can be detached from the truck while the platform remains in the recess of the cargo container.

[0038] It is possible for the lower forks to be wider than the platform or the upper forks (and therefore not to be situated precisely under the platform).

[0039] It is possible for the lower forks to be roughly as wide as the external width of the truck.

[0040] It is possible for the platform to have about the same width as the internal width of the truck.

[0041] It is possible for one or more of the pivotable wheels to be directed transversely of the forks. During disconnection from the truck the transporter can then travel backward on the rollers and sideward on the pivotable wheels mounted on the platform.

[0042] The pivotable wheels can be folded away or folded down while the platform is loaded. The object of the fold-down wheels is to save space in combination with providing the option of being able to carry the cargo on the platform closer to the ground in respect of driving on and off for instance a hand pallet truck.

[0043] It is further possible for the whole transporter

(including frame part) to be fixed in a recess in the contour of the cargo container, so that the transporter does not protrude at all outside the contour of the cargo container. When the loading space is closed the transporter lies wholly within the closed loading space in this embodiment and is protected against rain, theft and damage.

[0044] It is possible for the platform to be provided with (removable) (side) walls.

[0045] It is possible for the ramp (18) to be lockable in vertical position. This is to limit the dimension during use as transporter and/or to enclose the cargo.

[0046] The recess in the loading floor of the truck can be closed on the underside.

[0047] It is important that the top side of the platform or upper forks preferably has a substantially flush connection to the surface of the cargo container of the material carrier.

[0048] The whole transporter can fit into a recess of the (closed) loading space, even at the side of the loading space of the truck (see figures 8 and 9).

[0049] In a second preferred embodiment of transporter 100 as shown in figures 10-12, the lower forks 110 are displaceable up and downward in frame part 112 by means of a piston rod mechanism 114, which piston rod 114 is mounted on the lower side thereof on a bottom cross beam 115 of frame 112 and on the upper side thereof on a lying transverse upper part 116 of lower forks 110.

[0050] Upper forks 124, which are also provided with front wheels (not shown), extend from a cross beam 118 which is displaceable up and downward.

[0051] Cross beam 118 is provided on the end thereof with two upright sleeves 122 which are displaceable up and downward over two side arms 126 of frame 112.

[0052] A transverse frame beam 128 extends between the upper ends of side arms 126.

[0053] A piston rod assembly 130 is fixed at an upper end thereof to frame beam 128 and at a bottom end thereof to the cross beam 118 of upper forks 124. Upper forks 124 are in this way displaceable up and downward over frame 112.

[0054] Two recesses 132 corresponding with upper forks 124 can be found in the floor 136 of the truck.

[0055] The innermost end of upper forks 124 is provided with holes or slots 140 (see also figure 11).

[0056] The locking mechanism 142 is mounted between the recesses 132 in floor 136 of the truck.

[0057] Locking mechanism 142 has two opposite arms 144 which are provided with nose portions 146.

[0058] A spring 148 extends between the two arms 144.

[0059] Arms 144 are mounted pivotally on a rectangular body 150 which is provided on the front thereof with a rod 152, which rod 152 is mounted displaceably in a fixed block 154. This block 154 is fixed to the floor of the truck.

[0060] Each arm 144 is provided on the upper end thereof with two cables 156, which two cables 156 are guided through a triangular part 158 so as to come together as one cable 160 at the top of triangle 158. If cable 160 is pulled taut, the two cable 156 are also pulled taut and nose portions 146 of arms 144 are pulled inward, whereby these noses 146 are no longer found in the holes 140 of upper forks 124, whereafter the upper forks 124 can be detached.

[0061] When cables 156 are tensioned, the body 150 of coupling mechanism 142 is pushed downward by means of arms 144, whereby the rod 152 extends in a corresponding recess 162 of the truck floor.

[0062] When transporter 100 is mounted on the truck, the upper forks 124 push noses 146 of arms 144 inward until the noses drop into the holes 140 of upper forks 124, whereby the transporter is locked in the truck floor.

[0063] After locking of the transporter in the truck floor, the body 150 of locking mechanism 142 can be placed further forward relative to the truck floor recess, whereby the transporter is pulled further into the floor in order to effect a good positioning.

[0064] Transporter 100 can be locked to and released from the truck as follows:

[0065] The transporter can approach the container of the truck, so that upper forks 124 come roughly into line with recesses 132 of the floor of the truck.

[0066] Although it is desirable that upper forks 124 can approach the recesses 132 in one line, it will be apparent that, if this is not the case, the transporter can approach the truck "out of line" and that the attachment will then align itself.

[0067] The own weight of the transporter assists in finding the correct point of engagement in the floor recesses 132.

[0068] When the rod 117 of piston rod combination 114 is displaced upward, the lower forks 110 are pressed out relative to housing 4 in the direction of the ground, whereby transporter 100 inclines backward as a whole.

[0069] When lower forks 110 are raised relative to housing 4 as shown in figure 10, the transporter will incline forward as a whole.

[0070] Making use of this technical possibility, the point of support of the transporter can be displaced, during coupling and loading onto the truck, from the support at the front end of lower forks 110 to a point of support at the front ends of upper forks 124. The point of support at the front end of lower forks 110 is thus transferred during loading to the point of support at the front end of upper forks 124. It is thus impossible for the transporter to become suspended from the truck when they are locked to each other.

[0071] The transporter is then displaced forward until the upper forks are locked in the floor of the truck in the manner described above.

[0072] Complete locking is achieved after the housing and the lower forks are raised, as according to figure 6, whereafter the transporter is ready for displacement by means of the truck.

[0073] Release of the transporter is possible in reverse sequence. The transporter can only be released if the body 150 of coupling mechanism 142 is moved back (as shown in figure 12), and cables 156 and 160 are tightened.

[0074] The present invention is not limited to the above described preferred embodiment thereof; the rights sought are defined by the following claims, within the scope of which many modifications can be envisaged.

Claims

1. Material carrier (32) including a transporter (1) for transporting material between said material carrier, such as a truck, and a material destination for instance a shop situated at a busy location which is difficult to access, wherein the transporter comprises:

   - a frame part (2),
   - a support platform (8) which is displaceable upward and downward relative to the frame part between an elevated position and a lowered position, **characterised in that**
   - a floor (28) of said material carrier is provided with a recess (26) substantially vertically accessible, and
   - the support platform corresponds to a peripheral profile of the recess so that at least a part of the upper surface of the support platform serves as a part of the floor of the material carrier.

2. Carrier according to claim 1 in which the transporter is provided with fixing means for fastening the transporter to the material carrier when the support platform is fitted in the floor of the material carrier.

3. Carrier according to claim 1 or 2 wherein the support platform is provided with at least one wheel (20,22), which wheel is mounted on the transporter so as to be foldable between a storage, non use position and a position of use.

4. Carrier as claimed in any of the foregoing claims, wherein the support platform (8) takes a form such that it can be inserted into and removed from a pallet opening.

5. Carrier as claimed in any of the foregoing claims, further comprising a fork-like support element (10) arranged on the frame part, which fork-like element is arranged such that it extends forward under the support platform when in use.

6. Carrier as claimed in claim 5, wherein the fork element is provided on the front side with one or more rollers (12).

7. Carrier as claimed in any of the foregoing claims, further provided with a source of energy for upward and downward displacement of the platform and/or forward/rearward displacement of the transporter.

8. Carrier as claimed in any of the foregoing claims, provided with steering means (16) for steering the transporter between a loading and unloading area.

9. Carrier as claimed in any of the foregoing claims, wherein the fixing means comprise the platform and the fork-like support, wherein the fork-like support can be fixed under an opening of the freight carrier and wherein the platform can be fixed to the floor of the same freight carrier opening, so that the floor of the freight carrier is sandwiched between the fork support and the platform.

10. Carrier as claimed in any of the foregoing claims, further comprising transporting means, preferably a pallet truck, which transporting means can be releasably coupled to the transporter.

11. Carrier as claimed in any of the foregoing claims, wherein the fork element is displaceable up and downward by means of a piston rod mechanism (114,116) mounted between the fork element and the frame part.

12. Carrier as claimed in any of the foregoing claims, wherein the support comprises two protruding upper forks (124) which are provided with locking holes.

13. Carrier as claimed in any of the foregoing claims, comprising a locking mechanism (142) which comprises two mutually opposite pivotable locking nose elements (140) which are pivotable between a first locking position, wherein the nose elements extend into the holes of the upper forks of the transporter, and a second release position.

14. Carrier according to any of the claims 1-5, wherein said platform is provided on a front end with a pivotable Flap (18) for providing a flush connection between the upper surface of the support platform and the floor of the material carrier.

15. Use of a material carrier as claimed in claim 1-14 to carry goods.

16. Method for transporting goods using a material carrier as claimed in claims 1-14, comprising the steps of driving the material carrier to a parking area suitable for the purpose, placing the goods to be un-

loaded on the platform of the transporter, displacing the fork elements of the transporter downward until they come into contact with the ground, removing the transporter from the carrier opening and displacing the transporter platform downward, whereafter the transporter and the goods can be displaced to the desired location.

17. Method for transporting goods using a material carrier as claimed in any of the claims 1-14, comprising the steps of:

- placing cargo from a loading space of the material carrier onto the transporter of which the top side of a support platform is smoothly accessed from the floor of the loading spaces;
- displacing the transporter downward; and
- driving away transporting means, for instance a pallet truck, releasably coupled to the transporter.

18. Method for transporting goods using a material carrier (32) including a transporter (1), for transporting material between said material carrier (32) and a material destination, wherein the transporter comprises a frame part (2), a support platform (8) which is displacable upward and downward on the frame part between elevated position and a lowered position, wherein a floor of said material carrier is provided with a recess (26) substantially vertically accessible, and the support platform corresponds to a peripheral profile of the recess so that at least a part of the upper surface of the support platform serves as a part of the floor of the material carrier wherein, when lowered into an intermediate position, the support platform comprising on a front end with a pivotable flap (18) providing a substantially flush connection, to the surface of the cargo container of the material carrier, comprising the steps of driving the material carrier to a parking area suitable for the purpose, placing the goods to be unloaded on the platform of the transporter over said flush connection, removing the transporter from the material carrier and displacing the transporter platform downward, whereafter the transporter and the goods can be displaced to the desired location.

19. Method according to claims 18 further comprising steps for placing the support platform of the transporter in said substantially vertically accessible recess (26) of a floor of the loading area of the material carrier.

Patentansprüche

1. Materialtransporter (32) mit einem Verlader (1) zum Transportieren von Material zwischen dem Materialtransporter, wie beispielsweise einem Lastkraftwagen, und einem Materialbestimmungsort, zum Beispiel einem an einem belebten Ort gelegenen Geschäft, das schwierig zu erreichen ist, wobei der Verlader aufweist:

- ein Rahmenteil (2),
- eine Tragplattform (8), die relativ zu dem Rahmenteil zwischen einer erhöhten Stellung und einer abgesenkten Stellung nach oben und nach unten verschiebbar ist,

dadurch gekennzeichnet,

- **dass** ein Boden (28) des Materialtransporters mit einer Ausnehmung (26) versehen ist, die im Wesentlichen vertikal zugänglich ist, und
- **dass** die Tragplattform einem Umfangsprofil der Ausnehmung entspricht, sodass wenigstens ein Teil der Oberfläche der Tragplattform als ein Teil der Bodens des Materialtransporters dient.

2. Transporter nach Anspruch 1, bei welchem der Verlader mit einer Befestigungseinrichtung zum Befestigen des Verladers an dem Materialtransporter, wenn die Tragplattform in den Boden des Materialtransporters eingepasst ist, versehen ist.

3. Transporter nach Anspruch 1 oder 2, bei welchem die Tragplattform mit wenigstens einem Rad (20, 22) versehen ist, welches Rad an dem Verlader so befestigt ist, dass es zwischen einer Aufbewahrungs- und Nichtgebrauchsstellung und einer Gebrauchsstellung klappbar ist.

4. Transporter nach einem der vorhergehenden Ansprüche, bei welchem die Tragplattform (8) eine solche Form annimmt, dass sie in eine Palettenöffnung eingeschoben und daraus entfernt werden kann.

5. Transporter nach einem der vorhergehenden Ansprüche, ferner mit einem gabelartigen Tragelement (10), das an dem Rahmenteil angeordnet ist, welches gabelartige Element derart angeordnet ist, dass es sich bei Gebrauch unter der Tragplattform nach vorne erstreckt.

6. Transporter nach Anspruch 6, bei welchem das Gabelelement an der Vorderseite mit einer oder mehreren Rollen (12) versehen ist.

7. Transporter nach einem der vorhergehenden Ansprüche, ferner mit einer Energiequelle zur Aufwärts- und Abwärtsverschiebung der Plattform und/oder der Vorwärts/Rückwärts-Verschiebung des Verladers.

8. Transporter nach einem der vorhergehenden Ansprüche, mit einer Steuereinrichtung (16) zum Steuern des Verladers zwischen einem Belade- und Entladebereich.

9. Transporter nach einem der vorhergehenden Ansprüche, bei welchem die Befestigungseinrichtungen die Plattform und das gabelartige Tragelement aufweisen, wobei das gabelartige Tragelement unter einer Öffnung des Frachttransporters befestigt werden kann und wobei die Plattform am Boden der gleichen Frachttransporteröffnung befestigt werden kann, sodass der Boden des Frachttransporters zwischen dem Gabeltragelement und der Plattform in Sandwichbauweise angeordnet ist.

10. Transporter nach einem der vorhergehenden Ansprüche, ferner mit einer Transporteinrichtung, vorzugsweise einem Hubwagen, welche Transporteinrichtung lösbar mit dem Verlader verbunden werden kann.

11. Transporter nach einem der vorhergehenden Ansprüche, bei welchem das Gabelelement mittels eines Kolbenstangenmechanismus (114, 116), das zwischen dem Gabelelement und dem Rahmenteil befestigt ist, nach oben und unten verschiebbar ist.

12. Transporter nach einem der vorhergehenden Ansprüche, bei welchem der Träger zwei vorstehende obere Gabeln (124) aufweist, die mit Verriegelungslöchern versehen sind.

13. Transporter nach einem der vorhergehenden Ansprüche, mit einem Verriegelungsmechanismus (142), der zwei einander gegenüber liegende schwenkbare Verriegelungsnasenelemente (140) aufweist, die zwischen einer ersten Verriegelungsstellung, bei der sich die Nasenelemente in die Löcher der oberen Gabeln des Verladers erstrecken, und einer zweiten Freigabestellung schwenkbar sind.

14. Transporter nach einem der Ansprüche 1 bis 5, bei welchem die Plattform an einem vorderen Ende mit einer schwenkbaren Klappe (18) zum Vorsehen einer bündigen Verbindung zwischen der Oberfläche der Tragplattform und dem Boden des Materialtransporters versehen ist.

15. Verwendung eines Materialtransporters nach Anspruch 1 bis 14 zum Transportieren von Waren.

16. Verfahren zum Transportieren von Waren mit einem Materialtransporter nach einem der Ansprüche 1 bis 14, mit den Schritten des Fahrens des Materialtransporters zu einem für den Zweck geeigneten Parkbereich, des Platzierens der zu entladenden Waren auf der Plattform des Verladers, des Verschiebens der Gabelelemente des Verladers nach unten, bis sie mit dem Boden in Kontakt kommen, des Entfernens des Verladers von der Transporteröffnung und Verschiebens der Verladerplattform nach unten, woraufhin der Verlader und die Waren zu dem gewünschten Ort verschoben werden können.

17. Verfahren zum Transportieren von Waren mit einem Materialtransporter nach einem der Ansprüche 1 bis 14, mit den Schritten:

Setzen einer Fracht von einem Laderaum des Materialträgers auf den Verlader, dessen Oberseite einer Tragplattform gleichmäßig von dem Boden der Laderäume zugänglich ist;
Verschieben des Verladers nach unten; und
Wegfahren einer Transporteinrichtung, zum Beispiel eines Hubwagens, der lösbar mit dem Verlader verbunden ist.

18. Verfahren zum Transportieren von Waren mit einem Materialtransporter (32) mit einem Verlader (1) zum Transportieren von Material zwischen dem Materialtransporter (32) und einem Materialbestimmungsort, wobei der Verlader ein Rahmenteil (2), eine Tragplattform (8), die an dem Rahmenteil zwischen einer erhöhten Stellung und einer abgesenkten Stellung nach oben und nach unten verschiebbar ist, wobei ein Boden des Materialtransporters mit einer im Wesentlichen vertikal zugänglichen Ausnehmung (26) versehen ist und die Tragplattform einem Umfangsprofil der Ausnehmung entspricht, sodass wenigstens ein Teil der Oberfläche der Tragplattform als ein Teil des Bodens des Materialtransporters dient, wobei die Tragplattform an einem vorderen Ende eine schwenkbare Klappe (18) aufweist, die beim Absenken in eine Zwischenstellung eine im Wesentlichen bündige Verbindung mit der Oberfläche des Frachtcontainers des Materialtransporters vorsieht, mit den Schritten des Fahrens des Materialtransporters zu einem für den Zweck geeigneten Parkbereich, des Setzens der zu entladenden Waren auf die Plattform des Verladers über die bündige Verbindung, des Entfernens des Verladers von dem Materialtransporter und des Verschiebens der Verladeplattform nach unten, woraufhin der Verlader und die Waren zu dem gewünschten Ort verschoben werden können.

19. Verfahren nach Anspruch 18, ferner mit den Schritten zum Platzieren der Tragplattform des Verladers in der im Wesentlichen vertikal zugänglichen Ausnehmung (26) eines Bodens des Ladebereichs des Materialtransporters.

Revendications

1. Transporteur de matériaux (32) comprenant un chariot élévateur (1) pour transporter des matériaux entre ledit transporteur de matériaux tel qu'un camion, et une destination des matériaux, par exemple un magasin situé à un endroit occupé qui est difficile d'accès, dans lequel le chariot élévateur comprend :

   un châssis (2) ;
   une plate-forme de support (8) qui est mobile vers le haut et vers le bas par rapport au châssis entre une position élevée et une position baissée, **caractérisé en ce que**
   un plancher (28) dudit transporteur de matériaux est muni d'une dépression (26) accessible de manière sensiblement verticale et
   la plate-forme de support correspond à un profilé périphérique de la dépression de telle sorte qu'au moins une partie de la surface supérieure de la plate-forme de support sert de partie du plancher du transporteur de matériaux.

2. Transporteur selon la revendication 1 dans lequel le chariot élévateur est muni de moyens de fixation pour fixer le chariot élévateur au transporteur de matériaux lorsque la plate-forme de support est emboîtée dans le plancher du transporteur de matériaux.

3. Transporteur selon la revendication 1 ou 2 dans lequel la plate-forme de support est munie d'au moins une roue (20, 22) qui est montée sur le chariot élévateur de façon à pouvoir être pliée entre une position de stockage, une position de repos et une position d'utilisation.

4. Transporteur selon l'une des revendications précédentes, dans lequel la plate-forme de support (8) prend une forme telle qu'elle puisse être insérée et retirée d'une ouverture de palette.

5. Transporteur selon l'une des revendications précédentes, comprenant en outre un élément de support en forme de fourche (10) disposé sur le châssis, lequel élément en forme de fourche est disposé de telle sorte qu'il s'étende vers l'avant sous la plate-forme de support lorsqu'il est en utilisation.

6. Transporteur selon la revendication 5 dans lequel l'élément en forme de fourche est muni à l'avant d'un ou plusieurs rouleaux (12).

7. Transporteur selon l'une des revendications précédentes, muni en outre d'une source d'énergie pour le déplacement vers le haut et vers le bas de la plate-forme et/ou le déplacement vers l'avant et vers l'arrière du chariot élévateur.

8. Transporteur selon l'une des revendications précédentes, muni de moyens de direction (16) pour diriger le chariot élévateur entre une zone de chargement et une zone de déchargement.

9. Transporteur selon l'une des revendications précédentes, dans lequel les moyens de fixation comprennent la plate-forme et le support en forme de fourche, dans lequel le support en forme de fourche peut être fixé sous une ouverture du transporteur de fret et dans lequel la plate-forme peut être fixée au plancher de la même ouverture du transporteur de fret, de façon à ce que le plancher du transporteur de fret soit pris en sandwich entre le support en forme de fourche et la plate-forme.

10. Transporteur selon l'une des revendications précédentes, comprenant en outre un moyen de transport, de préférence un chariot à palettes, lequel moyen de transport peut être relié de manière amovible au chariot élévateur.

11. Transporteur selon l'une des revendications précédentes, dans lequel l'élément en forme de fourche est mobile vers le haut et vers le bas à l'aide d'un mécanisme à tige de piston (114, 116) monté entre l'élément en forme de fourche et le châssis.

12. Transporteur selon l'une des revendications précédentes, dans lequel le support comprend deux fourches supérieures en saillie (124) qui sont munies de trous de verrouillage.

13. Transporteur selon l'une des revendications précédentes, comprenant un mécanisme de verrouillage (142) qui comprend deux embouts de verrouillage (140) pivotant dans deux directions opposées, qui peuvent être pivotés entre une première position de verrouillage, dans laquelle les embouts s'étendent dans les trous des fourches supérieures du chariot élévateur, et une deuxième position de repos.

14. Transporteur selon l'une des revendications 1 à 5, dans lequel ladite plate-forme est munie à l'avant d'un volet pivotant (18) pour établir une liaison affleurante entre la surface supérieure de la plate-forme de support et le plancher du transporteur de matériaux.

15. Utilisation d'un transporteur de matériaux selon l'une des revendications 1 à 14 pour transporter des marchandises.

16. Procédé de transport de marchandises à l'aide d'un transporteur de matériaux selon l'une des revendications 1 à 14, comprenant les étapes suivantes :

conduite du transporteur de matériaux vers une zone de parking appropriée à cet usage, placement des marchandises à décharger sur la plate-forme du chariot élévateur, déplacement des éléments en forme de fourche du chariot élévateur vers le bas jusqu'à ce qu'ils viennent en contact avec le sol, retrait du chariot élévateur de l'ouverture du transporteur et déplacement de la plate-forme du chariot élévateur vers le bas, le chariot élévateur et les marchandises pouvant ensuite être déplacées vers l'endroit souhaité.

17. Procédé de transport de marchandises à l'aide d'un transporteur de matériaux selon l'une des revendications 1 à 14, comprenant les étapes suivantes :

déplacement des marchandises d'une zone de chargement du transporteur de matériaux sur le chariot élévateur dont le côté supérieur d'une plate-forme de support est accessible avec une transition à partir du plancher des zones de chargement ;
déplacement du chariot élévateur vers le bas ; et
éloignement du moyen de transport, par exemple un chariot à palette, relié de manière amovible au chariot élévateur.

18. Procédé de transport de marchandises à l'aide d'un transporteur de matériaux (32) comprenant un chariot élévateur (1), pour transporter des matériaux entre ledit transporteur de matériaux (32) et une destination des matériaux, dans lequel le chariot élévateur comprend un châssis (2), une plate-forme de support (8) qui est mobile vers le haut et vers le bas par rapport au châssis entre une position élevée et une position baissée, dans lequel un plancher dudit transporteur de matériaux est muni d'une dépression (26) accessible de manière sensiblement verticale, et la plate-forme de support correspond à un profilé périphérique de la dépression de telle sorte qu'au moins une partie de la surface supérieure de la plate-forme de support sert de partie de plancher du transporteur de matériaux, dans lequel, lorsqu'elle est baissée vers une position intermédiaire, la plate-forme de support, comprenant à l'avant un volet pivotant (18), qui permet une liaison sensiblement affleurante avec la surface du conteneur de marchandises du transporteur de matériaux, comprenant les étapes suivantes : conduite du transporteur de matériaux vers une zone de parking appropriée à cet usage, déplacement des marchandises à décharger sur la plate-forme du chariot élévateur sur ladite liaison affleurante, retrait du chariot élévateur du transporteur de matériaux et déplacement de la plate-forme du chariot élévateur vers le bas, le chariot élévateur et les marchandises pouvant ensuite être déplacées vers l'endroit souhaité.

19. Procédé selon la revendication 18, comprenant en outre les étapes de déplacement de la plate-forme de support du chariot élévateur vers ladite dépression (26) accessible de manière sensiblement verticale du plancher de la zone de chargement du transporteur de matériaux.

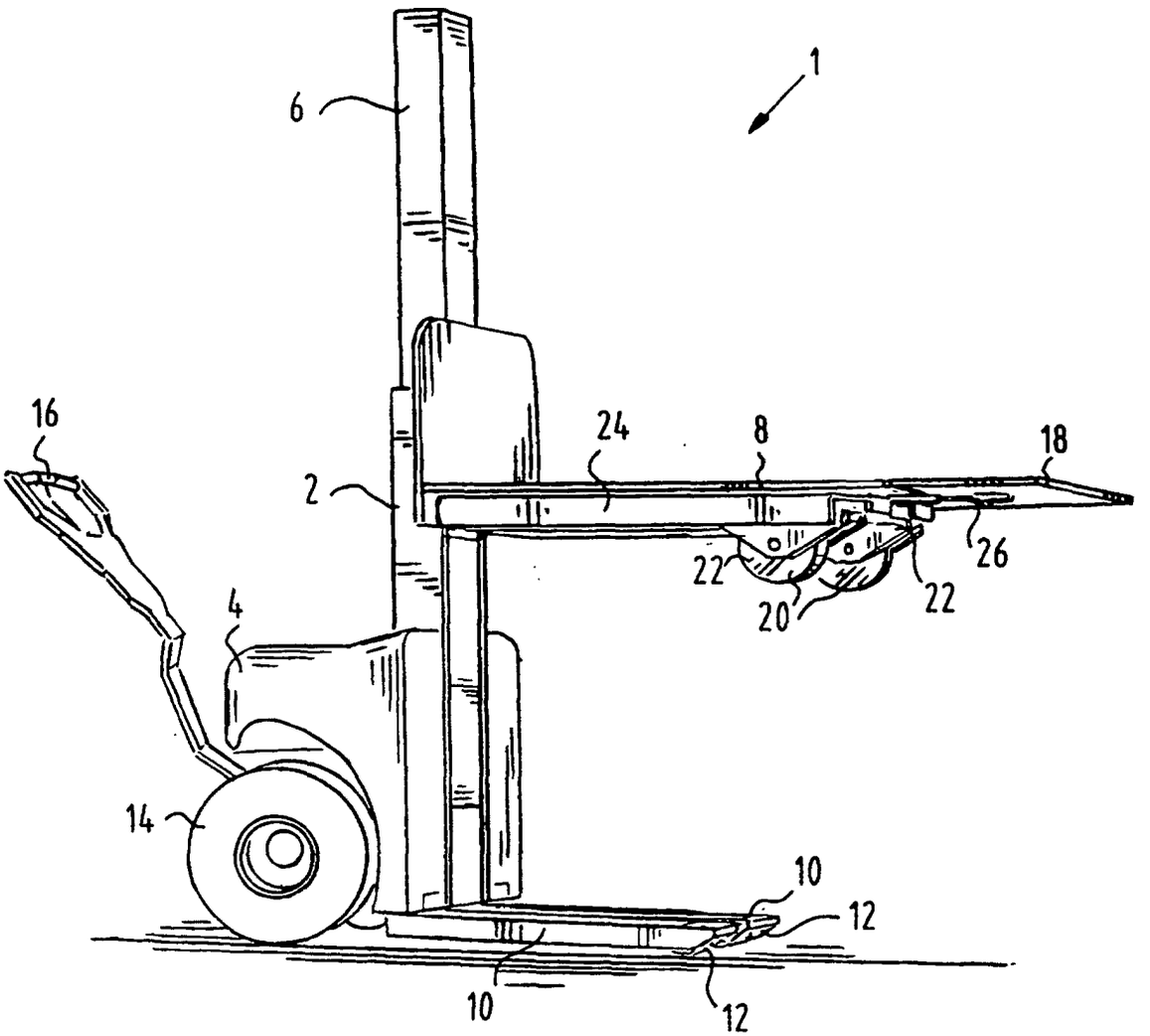


FIG.1

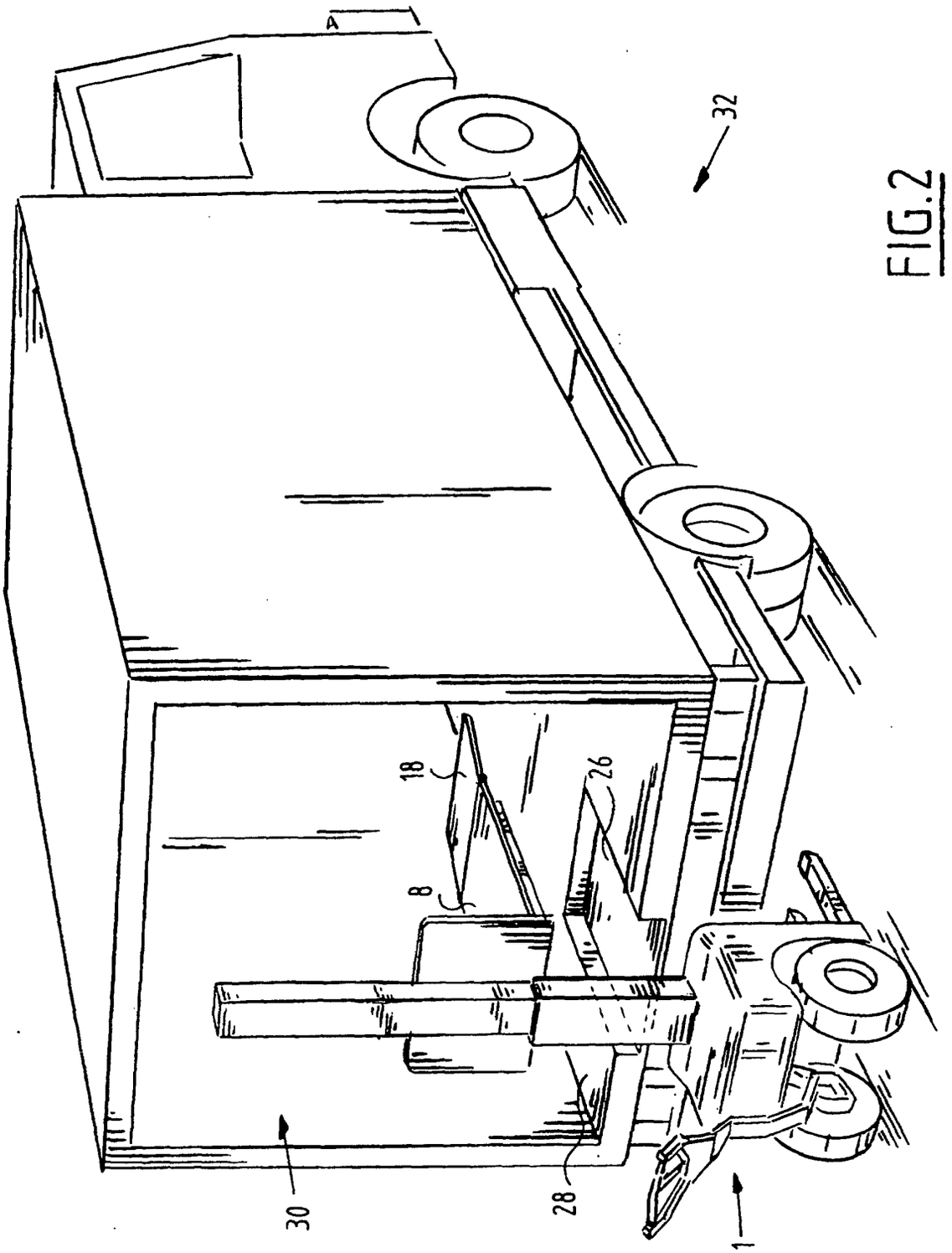


FIG.2

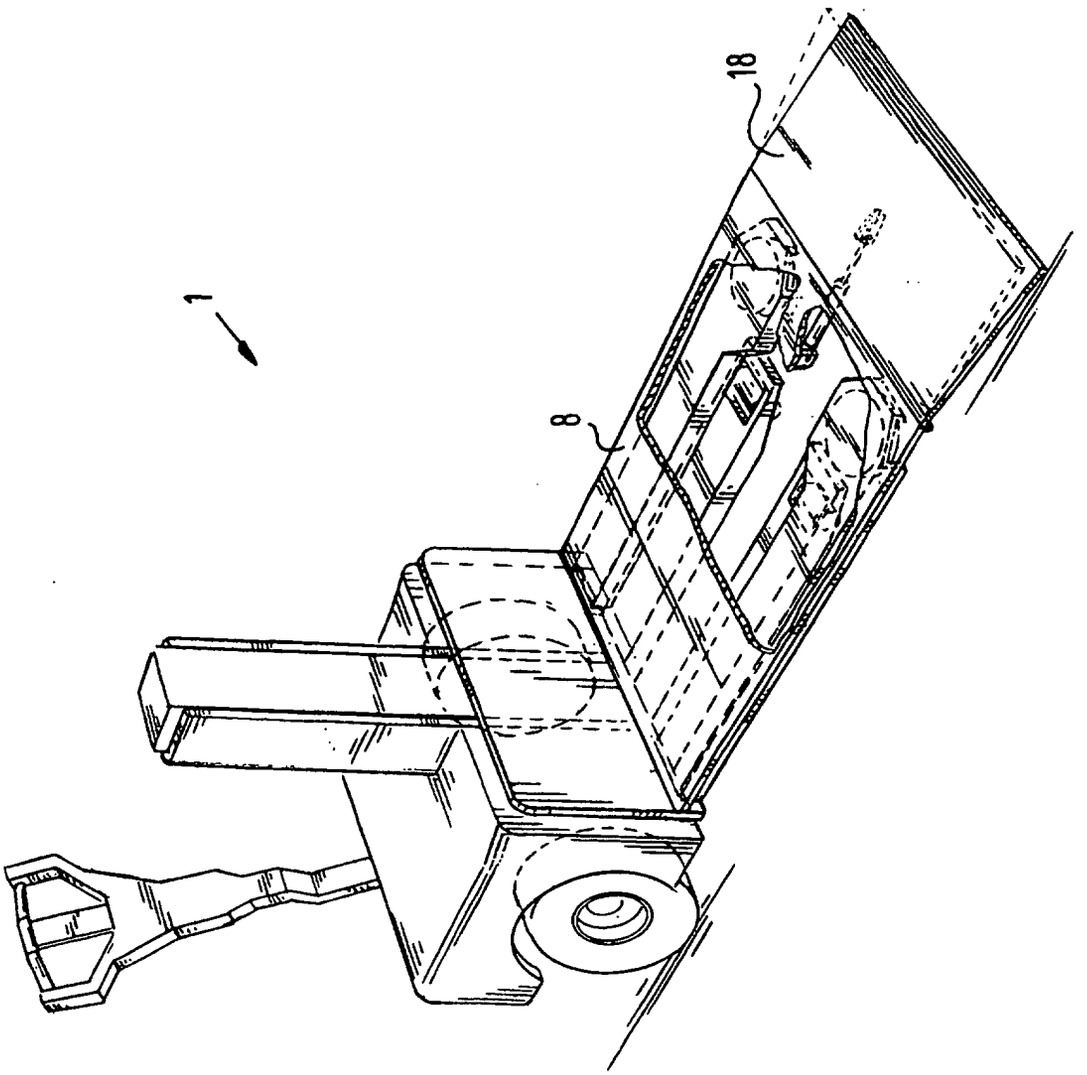


FIG.3

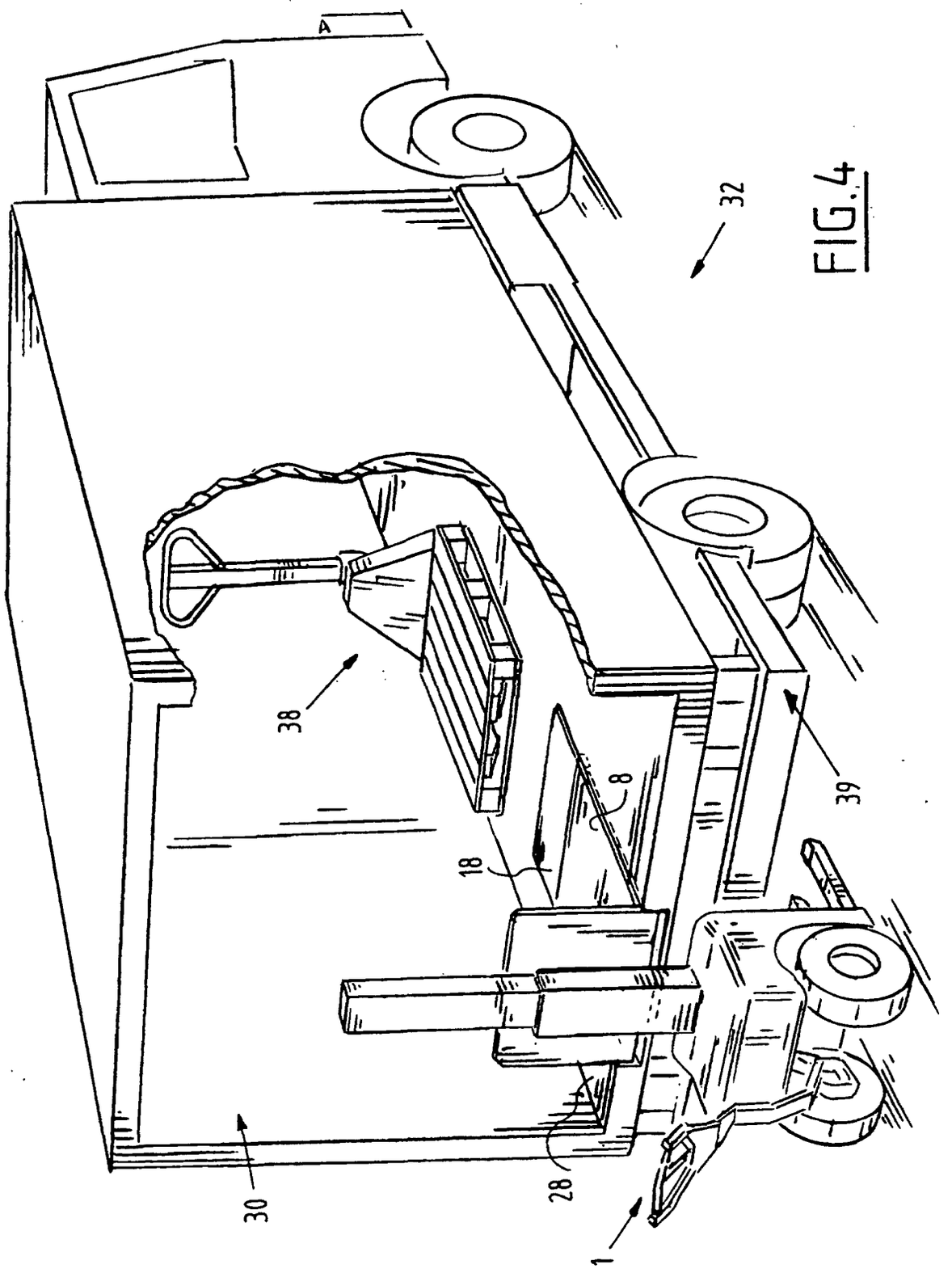


FIG.4

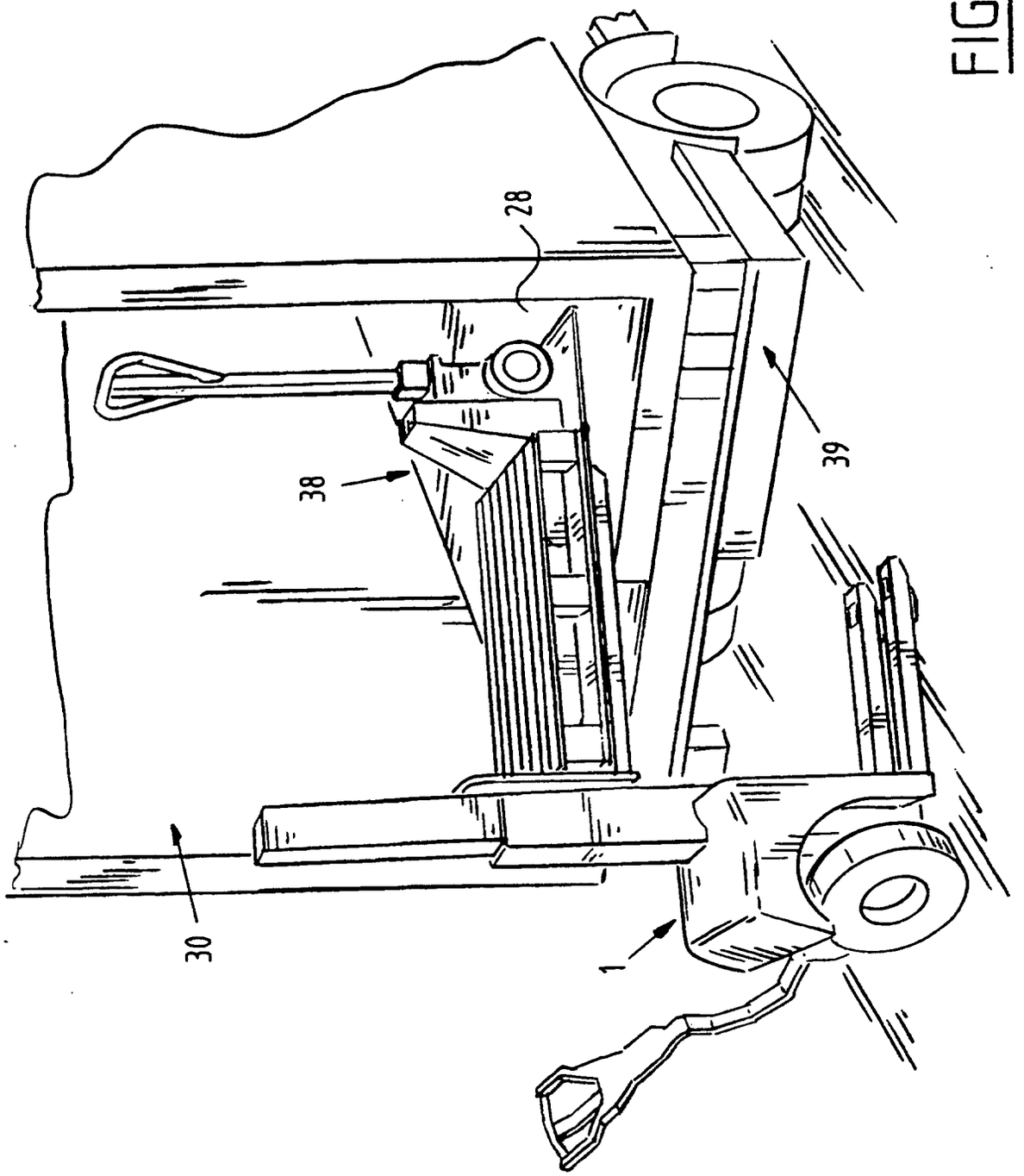


FIG.5

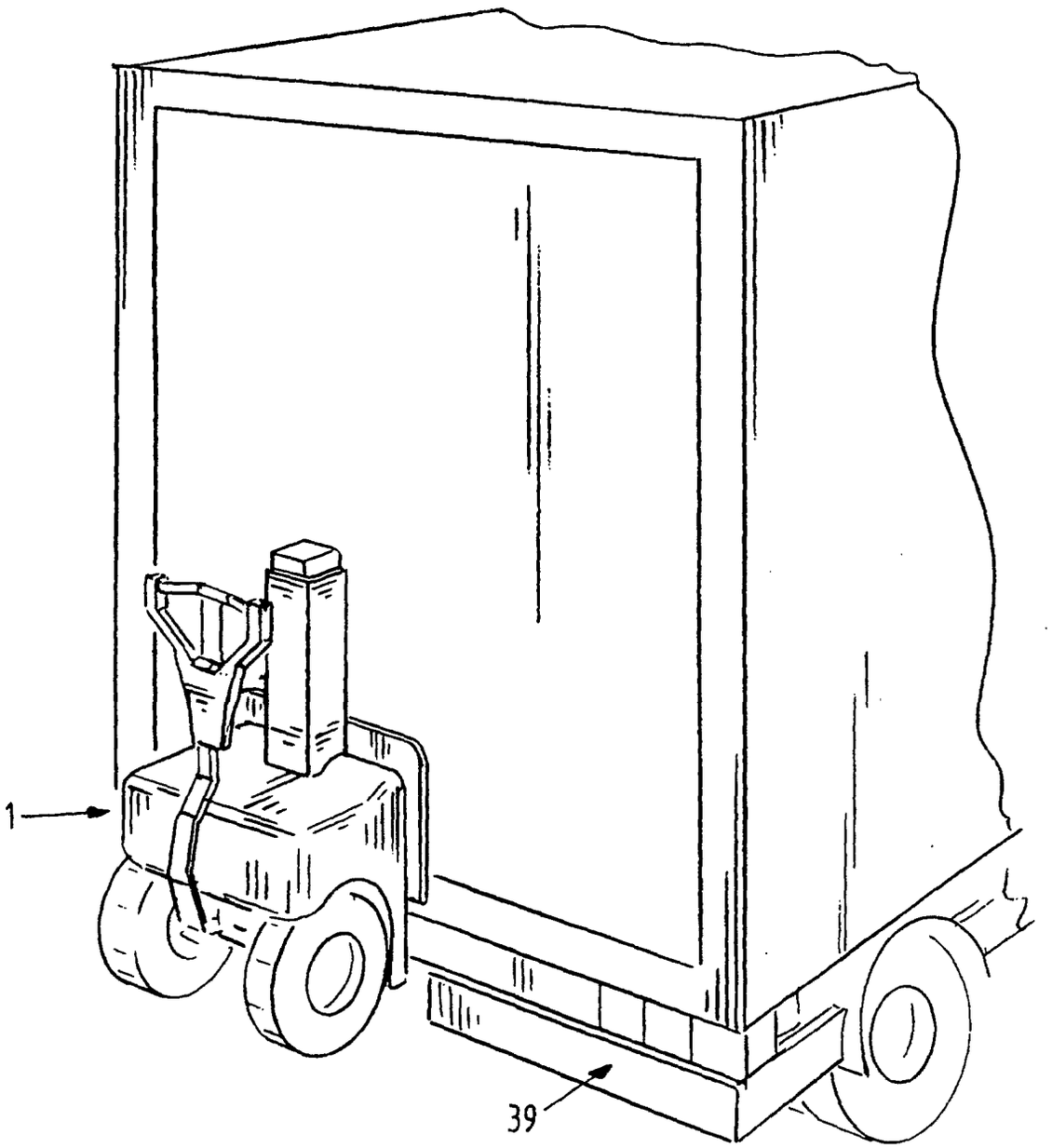


FIG.6

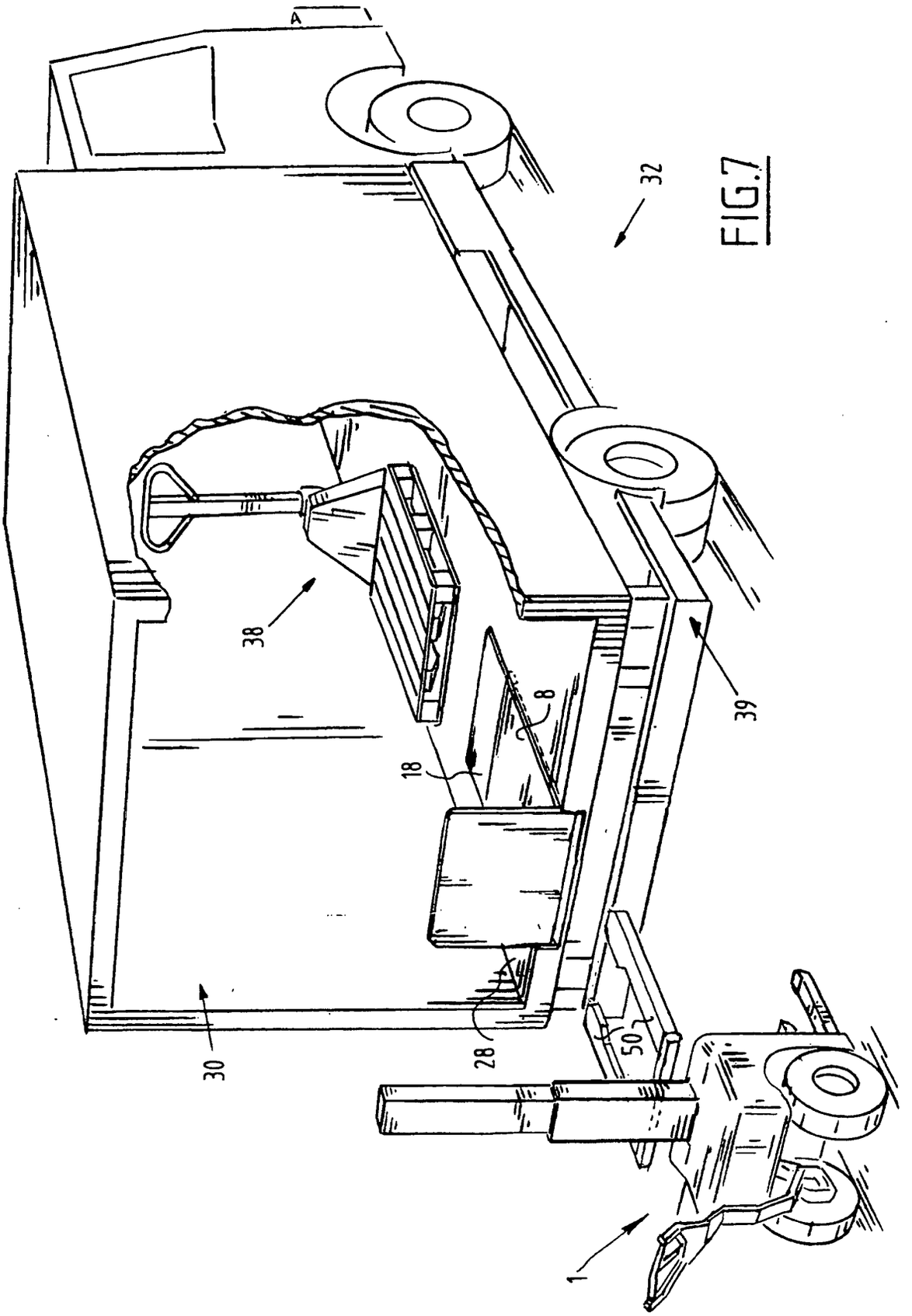


FIG.7

FIG.8

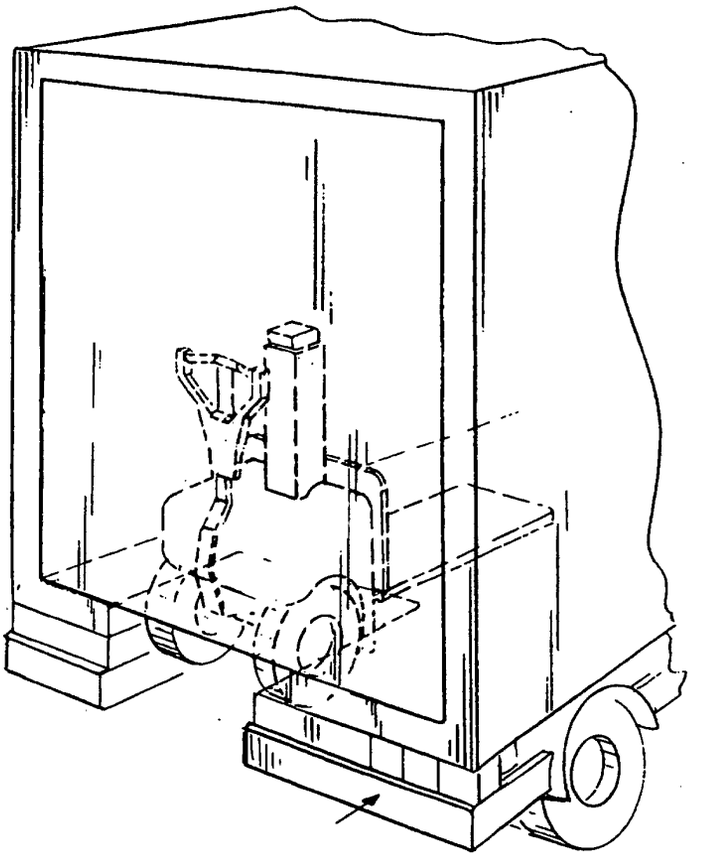
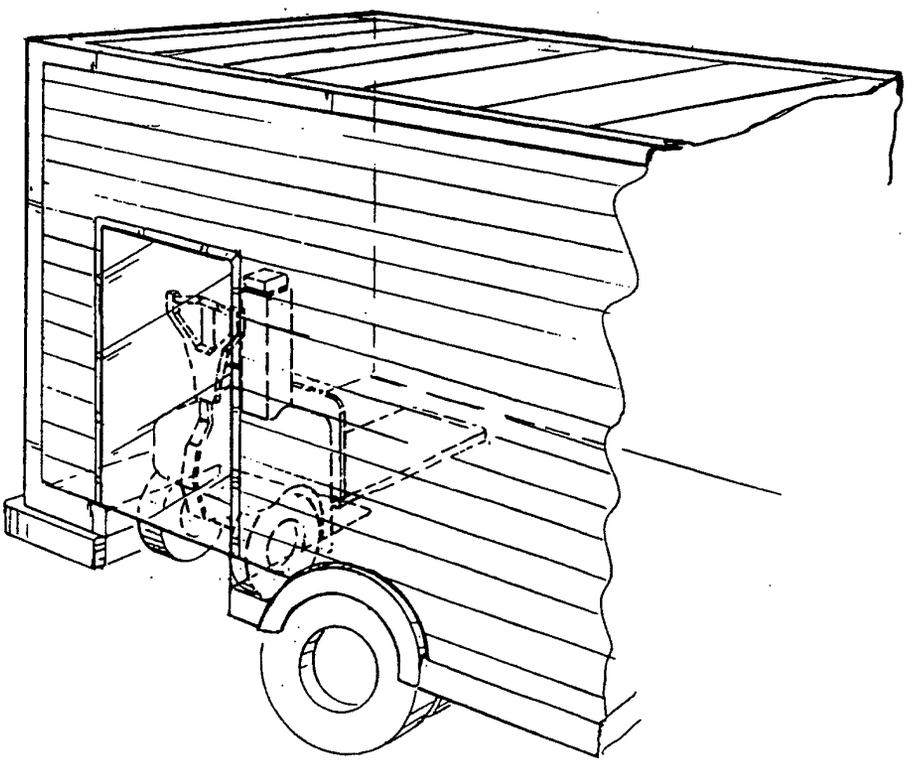


FIG.9



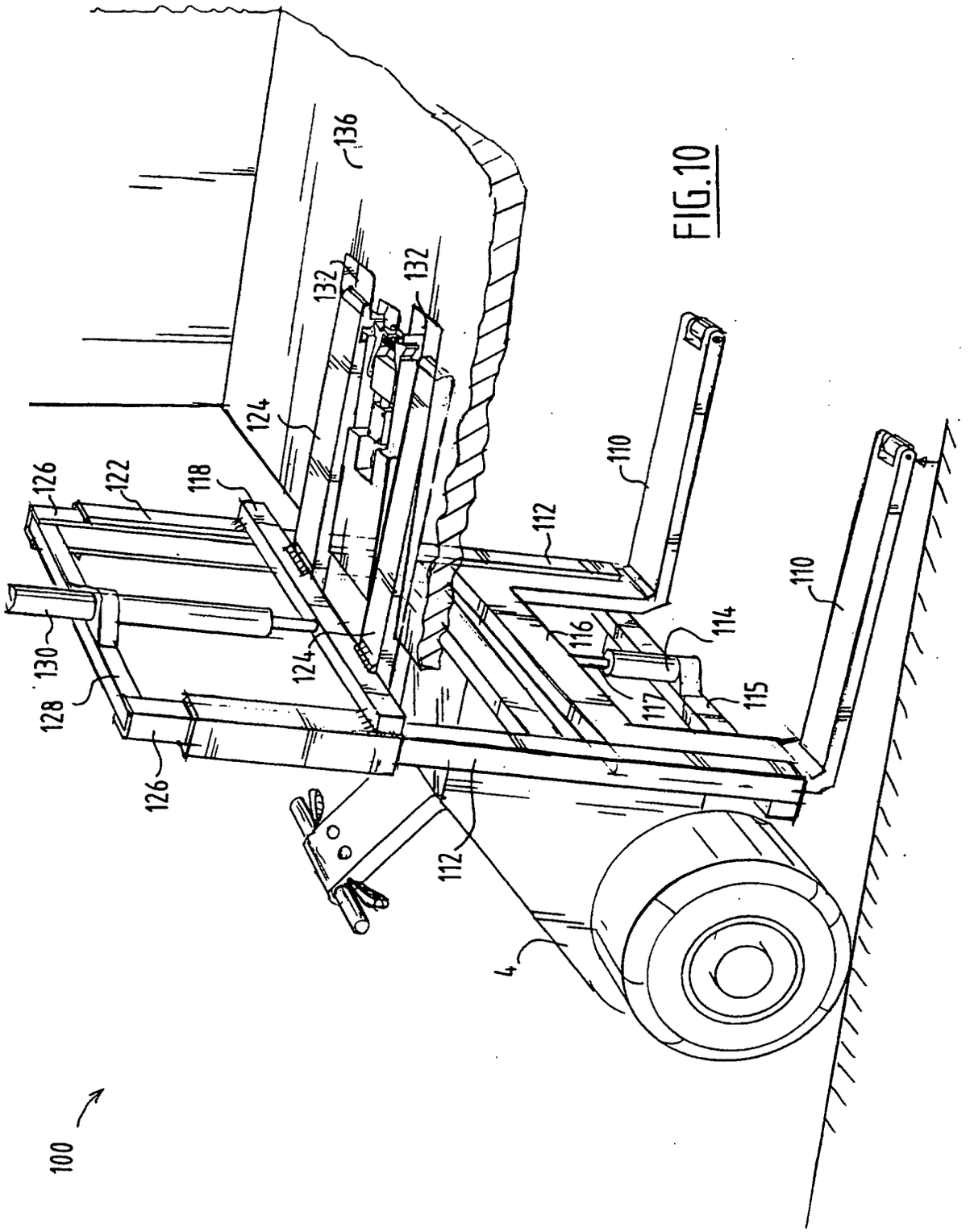

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FIG.10

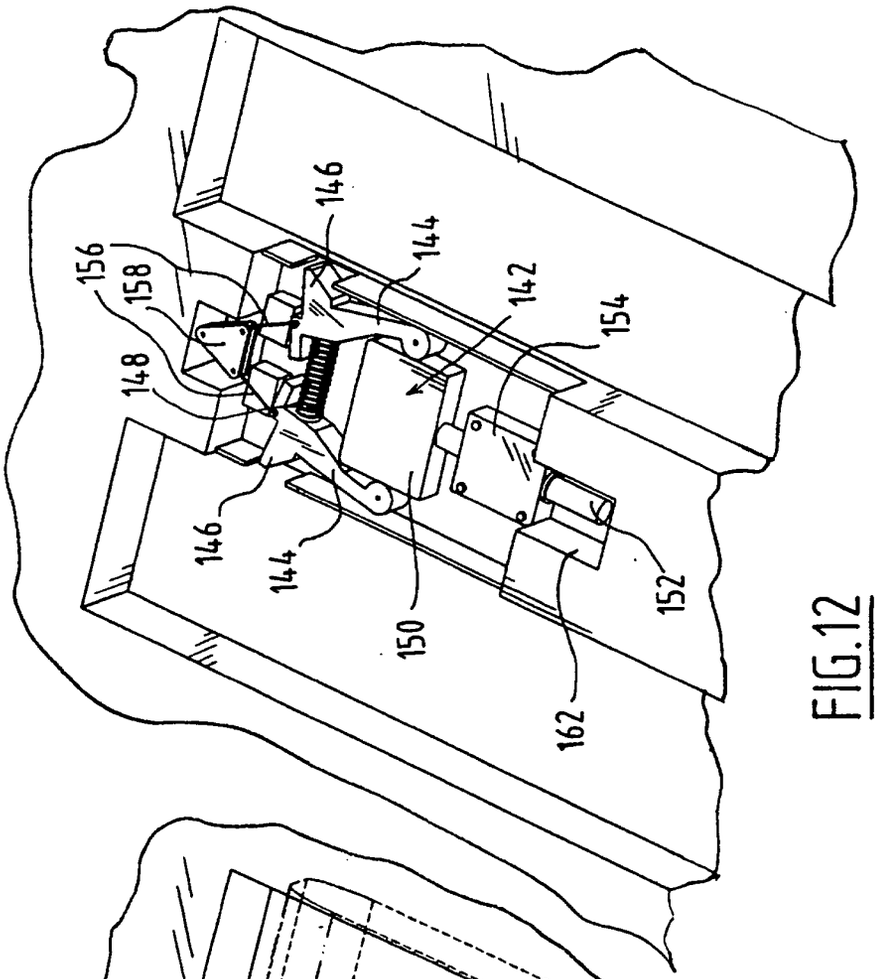

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FIG.12

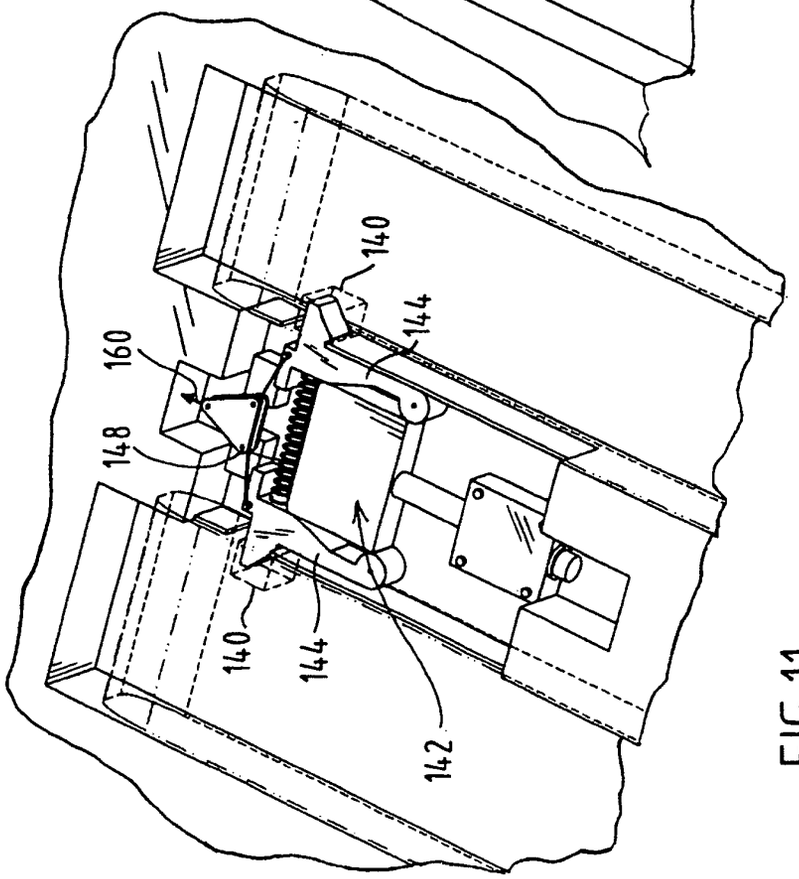

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FIG.11