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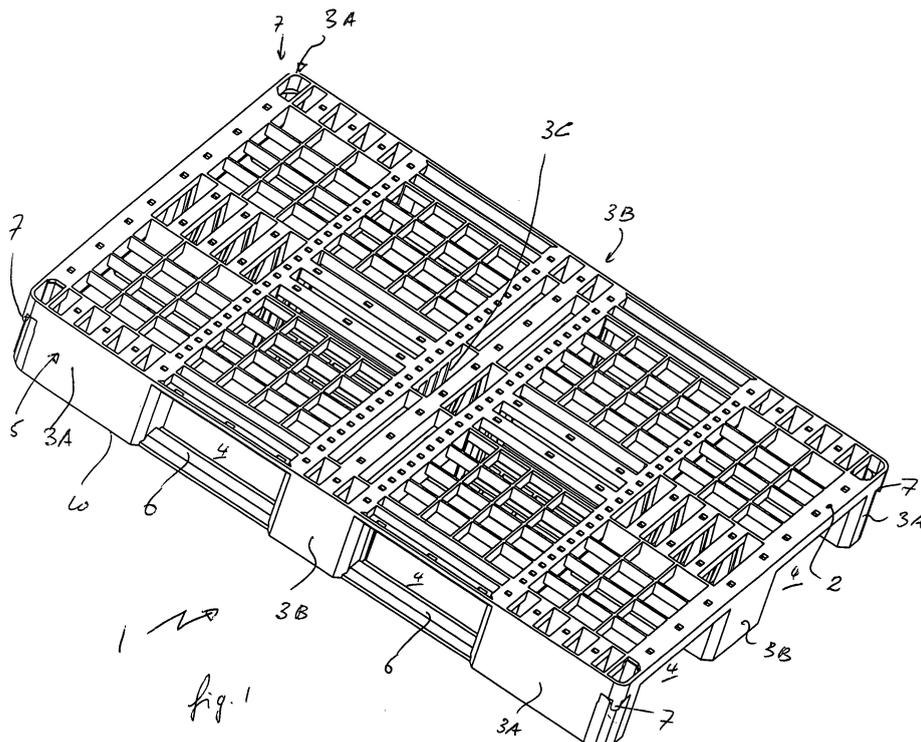
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(54) **Pallet and method of securing goods onto a pallet**

(57) A pallet, comprising a substantially rectangular deck for supporting goods, further comprising support posts extending downwardly relative to the deck and fork pockets, defined between the posts below the deck, accessible from the side of the pallet to receive the forks of forklift or pallet jack. The pallet is provided with at least one gripper, extending downwardly relative to the deck,

for gripping a wrap that in use is placed around the side of the pallet. The invention also relates to a method of securing goods onto a pallet, wherein a wrap is placed around goods that are arranged on the deck of the pallet such that the wrap extends around the sides of the pallet and the goods placed thereon, and wherein the wrap is gripped by grippers extending downwardly relative to the deck.



Description

[0001] The invention relates to a pallet, comprising a deck for supporting goods thereon, further comprising support posts extending downwardly relative to the deck and fork pockets, defined between the posts below the deck, accessible from the side of the pallet to receive the forks of for example a fork lift or a pallet jack.

[0002] Such a pallet is commonly known and is used as a platform for transporting goods with the aid of fork lifts or pallet jacks. Preferably, such a pallet is standardized, e.g. a Euro pallet.

[0003] To stabilize goods during transportation, goods are often secured to the deck by placing a wrap around the sides of the pallet and the goods placed thereon, e.g. by wrapping foil upward from the base of the pallet or by thermally shrinking a tubular wrap onto the outer perimeter of the pallet and the goods. The bottom portion of the wrap forms a tight skirt that connects the goods to the pallet.

[0004] However, the wrap does not always sufficiently transfer the forces between the goods and the pallet. This is particular the case when a pallet is moulded and/or is made out of a plastics material.

[0005] The invention aims to alleviate this problem, without decreasing the functionality of the pallet.

[0006] Thereto, the invention provides for a pallet, comprising a deck for supporting goods, further comprising support posts extending downwardly relative to the deck and fork pockets, defined between the posts below the deck, accessible from the side of the pallet to receive the forks of forklift or pallet jack, characterized in that the pallet is provided with at least one gripper, extending downwardly relative to the deck, for gripping a wrap that in use is placed around the side of the pallet.

[0007] By providing the pallet with grippers that extend downwardly relative to the deck, the bottom portion of the wrap skirting the perimeter of the deck can be gripped securely. When using tubular shrink wrap foil, the foil will shrink upon heating inwardly and reduce in contour, so that it will engage the gripper. Therefore no further action is then needed to secure the foil behind the gripper. When wrapping a pallet in foil, the free end of the foil can be attached simply and reliably by hooking it behind the gripper. This way, the start of the wrapping operation can be simplified in an elegant manor.

[0008] Preferably, each gripper comprises a sturdy singular gripping finger or hook.

[0009] By locating the gripper or grippers at the outer perimeter of the pallet, within the outer contour of the deck, engagement between the wrap and the gripper is facilitated.

[0010] Preferably, the gripper or grippers are located at a corner of the pallet, so that advantage is taken of the tidiness of the wrap at the corners.

[0011] By integrating a gripper in a post, advantage can be taken of the structure of the pallet to carry the gripper.

[0012] In an elegant manor, a gripper is defined by a recessed portion of the post, e.g. an inwardly recessed corner portion of the post extending downwards from the gripper. This way, the gripper can be integrated in the pallet in an efficient and reliable manor. The recessed corner portion forms an interruption of the outer contour of the deck that can be used to detect the position of a gripper, e.g. in automated wrapping processes.

[0013] By making the outer surface of the gripper flush with the outer perimeter of the deck, the engagement of between the wrap and the gripper can be further optimized, while the changes of damage to the gripper can be minimized.

[0014] Preferably, the pallet is integrally moulded and/or made out of a plastics material.

[0015] The invention also relates to a method of securing goods onto a pallet, wherein a wrap is placed around goods that are arranged on the deck of the pallet such that the wrap extends around the sides of the pallet and the goods placed thereon, and wherein the wrap is gripped by grippers extending downwardly relatively to the deck.

[0016] The invention shall be elucidated by using an example shown in a drawing. In the drawing:

- fig. 1 shows a perspective view of a pallet according the invention, and
- fig. 2 is a detail of fig. 1 showing a corner post with integrated gripper.

[0017] The figures are schematical representations of a preferred embodiment of the invention and are given as a non-limiting example of the invention.

[0018] Referring to figures 1 and 2, a pallet 1 is shown.

[0019] The pallet 1 comprises a substantially rectangular deck 2 for supporting goods thereon.

[0020] The pallet shown in this example is integrally moulded from a plastics material.

[0021] In this example, the deck 2 has an open lattice structure. It shall, however, be clear that the deck may also have a closed surface.

[0022] The pallet 1 further comprises support posts 3 extending downwardly relative to the deck 2. In this embodiment, the support posts extend downward from the deck 2. Four corner posts 3A are provided, four middle posts 3B and one centre post 3C.

[0023] The pallet 1 further comprises forklift pockets 4 that are defined between the posts 3A, 3B and that are located below the deck 2. The fork pockets 4 are accessible from the side of the pallet 1 to receive the forks of a forklift or pallet jack. This example illustrates a class of pallets in which each side 5 of the pallet 1 comprises two fork pockets 4, each intended to receive one fork of a bifurcated carrier.

[0024] In this example, the corner posts 3A and middle posts 3B of the longer sides of the rectangular pallet are connected by struts 6 extending along the bottom 10 of the pallet 1. In general, the structure below the deck 2 is

herein referred to as the base of the pallet. The base of the pallet is used to interspace the deck 2 from the floor and to define the spaces to receive the forks.

[0025] According to the invention, the pallet 1 is provided with at least one gripper 7. The gripper 7 extends downwardly relative to the deck 2. In use, the gripper 7 grips a wrap that is placed around the sides 5 of the pallet 1.

[0026] In this embodiment, the pallet 1 comprises four grippers 7, each embodied as a sturdy gripping finger extending downwardly from the deck 2.

[0027] The grippers 7 are each located at a corner of the pallet.

[0028] As shown, the grippers 7 are located at the outer perimeter of the pallet, within the outer contour of the deck 2.

[0029] As depicted in detail in fig. 2, the gripper 7 is integrated in a corner post 3A. The gripper 8 is defined by an inwardly recessed corner post portion 9 of the post 3A.

[0030] The outer surface of the gripper 7 is flush with the outer perimeter of the deck 2.

[0031] In use, goods are placed on the deck 2 of the pallet 1. Next, a wrap is placed around goods that are arranged on the deck 2 of the pallet, such that the wrap extends around the sides 5 of the pallet and the goods placed thereon. The wrap is gripped by grippers extending downwardly relatively to the deck.

[0032] It shall be clear to the skilled man that the invention is not limited to the exemplary embodiment discussed above. Many variations are possible.

[0033] For instance, the gripper may be provided as a hook, e.g. a metal hook that is inserted into the bottom of the deck. Further, a plurality of grippers may be provided along the perimeter of the deck, e.g. by recessing the outer surfaces of the posts. However, also a smaller number of grippers can be provided, e.g. a single hook extending downward from the deck.

[0034] Also, it shall be clear that the pallet may also be composed of various components, which need not be made out of plastics material, but may also be made out of different material e.g. wood or wood pulp. Further, it shall be clear that the pallet or its components need not be moulded.

[0035] Furthermore, the deck of the pallet may differ in shape and have, for example, a triangular or a circular contour. Also, the number of posts may vary, and the posts need not be interconnected, e.g. to allow nesting of the pallets.

[0036] Such variations will be readily apparent to the skilled person and are considered to be within the scope of the invention as defined in the appended claims.

Claims

1. A pallet, comprising a deck for supporting goods, further comprising support posts extending down-

wardly relative to the deck and fork pockets, defined between the posts below the deck, accessible from the side of the pallet to receive the forks of a forklift or a pallet jack, **characterized in that** the pallet is provided with at least one gripper, extending downwardly relative to the deck, for gripping a wrap that in use is placed around the side of the pallet.

2. The pallet according to claim 1, wherein the gripper comprises a finger or hook.

3. The pallet according to claim 1 or 2, wherein the gripper is located at the outer perimeter of the pallet, within the outer contour of the deck.

4. The pallet according to any of the preceding claims, wherein the gripper is located at a corner of the pallet.

5. The pallet according to any of the preceding claims, wherein the gripper is integrated in a post.

6. The pallet according to claim 5, wherein the gripper is defined by a recessed portion of the post.

7. The pallet according to any of the preceding claims, wherein the outer surface of the gripper is flush with the outer perimeter of the deck.

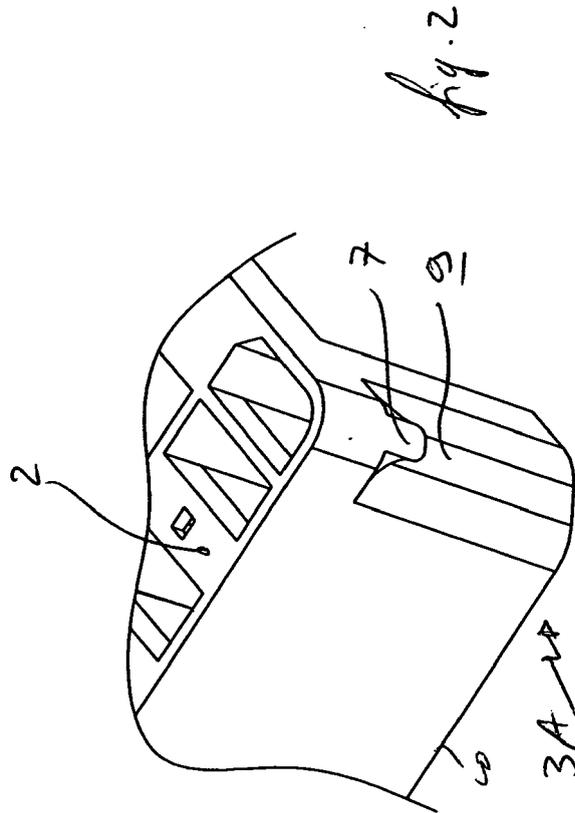
8. The pallet according to any of the preceding claims, wherein goods placed on the deck are secured to the pallet by a wrap extending around the sides of the pallet and the goods placed thereon, the wrap being gripped by the gripper.

9. The pallet according to any of the preceding claims, wherein the pallet is made of a plastics material.

10. The pallet according to any of the preceding claims, wherein the pallet is integrally moulded.

11. The pallet according to any of the preceding claims, wherein the deck is substantially rectangular.

12. A method of securing goods onto a pallet, wherein a wrap is placed around goods that are arranged on the deck of the pallet such that the wrap extends around the sides of the pallet and the goods placed thereon, and wherein the wrap is gripped by grippers extending downwardly relative to the deck.





DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	US 3 844 427 A (MILES LUSCOMBE W,GB ET AL) 29 October 1974 (1974-10-29) * column 2, line 37 - line 40; figure 2 * -----	1-3,7,8, 11,12	B65D71/00 B65D19/00 B65D19/44
X	US 4 340 329 A (ERICSSON ET AL) 20 July 1982 (1982-07-20) * column 2, line 39 - line 61; figures 1-5 * -----	1-3,7-12	
X	EP 0 585 832 A (ENGELMANN, HANS JUERGEN) 9 March 1994 (1994-03-09) * column 5, line 26 - line 34; figure 1 * -----	1,2,4,5, 8,11,12	
X	DE 93 16 711 U1 (GEBRUEDER AURICH GMBH, 42477 RADEVORMWALD, DE) 2 March 1995 (1995-03-02) * page 5, paragraph 2; figure 1 * -----	1,2,8, 11,12	
A		3-7	
A	WO 01/53162 A (LANKHORST RECYCLING B.V; VAN BELKOM, ARNOLDUS) 26 July 2001 (2001-07-26) * abstract; figures 1,5 * -----	1-11	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			B65D
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 4 August 2005	Examiner Appelt, L
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

2

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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 05 07 5666

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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04-08-2005

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 3844427	A	29-10-1974	GB 1359758 A	10-07-1974
			AU 5217173 A	15-08-1974
			BE 795538 A1	16-08-1973
			CA 992498 A1	06-07-1976
			DE 2312427 A1	29-11-1973
			ES 411428 A1	16-04-1976
			FR 2184063 A1	21-12-1973
			IT 994052 B	20-10-1975
			JP 49020868 A	23-02-1974
			ZA 7301291 A	26-06-1974

US 4340329	A	20-07-1982	SE 420698 B	26-10-1981
			BE 885880 A1	24-04-1981
			DE 3040164 A1	14-05-1981
			FR 2468515 A1	08-05-1981
			GB 2062788 A ,B	28-05-1981
			SE 7909127 A	06-05-1981

EP 0585832	A	09-03-1994	DE 4229537 A1	10-03-1994
			DE 9309810 U1	26-08-1993
			EP 0585832 A1	09-03-1994

DE 9316711	U1	02-03-1995	NONE	

WO 0153162	A	26-07-2001	NL 1014120 C2	20-07-2001
			AU 3422401 A	31-07-2001
			WO 0153162 A1	26-07-2001
