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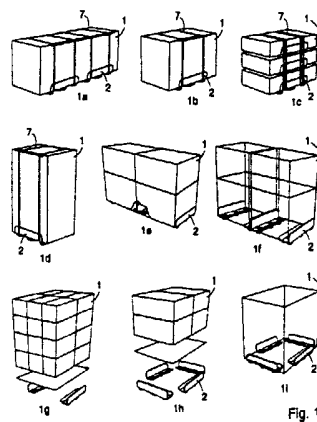
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⑤④ Virsraksts: **SISTĒMA UN PAŅĒMIENS KRAVAS VIENĪBU VEIDOŠANAI**

⑤⑦ Kopsavilkums: Izgudrojums attiecas uz sistēmu un paņēmieni kravas vienību (4) veidošanai. Sistēma ietver divus vai vairākus posteņus (8-10), kuros tiek veidotas kravas vienības (4). Pirmajā postenī (8) viena vai vairākas pakas (1) tiek savāktas un novietotas, lai veidotu kravas vienību (4). Tālākajos posteņos kravas vienībām (4) tiek pievienotas slogošanas uzmalas (2) un ap kravas vienībām (4) tiek aptītas stropes (7) un/vai nosprīgojošais aptinums.



Izgudrojuma formula

1. Sistēma kravas vienību (4) veidošanai, kas raksturojas ar to, ka to veido divos vai vairākos kravas vienību (4) veidošanas posteņos.
2. Sistēma saskaņā ar 1. punktu, kas raksturojas ar to, ka vienam postenim (8) ir līdzeklis viena vai vairāku iesaiņojumu (1) savākšanai un minētā(o) iesaiņojuma(u) (1) novietošanai, lai izveidotu vēlamo kravas vienību (4).
3. Sistēma saskaņā ar 1. vai 2. punktu, kas raksturojas ar to, ka vienam postenim (9) ir līdzeklis kravas vienības (4) aprīkošanai ar vienu vai vairākiem kravas paliktņiem (2).
4. Sistēma saskaņā ar 3. punktu, kas raksturojas ar to, ka izmantoto kravas (2) paliktņu skaits un to izvietojums tiek izvēlēts atbilstoši kravas vienību (4) veidojošo iesaiņojumu (1) izmēriem un skaitam.
5. Sistēma saskaņā ar 3. vai 4. punktu, kas raksturojas ar to, ka otrais postenis (9) ietver mašīnu (5) kravas paliktņu (2) izvietošanai zem kravas vienībām (4).
6. Sistēma saskaņā ar jebkuru no iepriekšējiem punktiem, kas raksturojas ar to, ka vienam postenim (10) apgādāts ar līdzekli katras kravas vienības (4) aprīkošanai ar vienu vai vairākām štropēm (7) un/vai nospiestu plastmasas aptinumu ap kravas vienības (4) ārpusi, ieskaitot kravas paliktņus (2).
7. Paņēmieni kravas vienības (4) veidošanai, kas raksturojas ar to, ka pirmajā postenī (8) tiek savākti viens vai vairāki iesaiņojumi (1) un izvietoti kravas vienības (4) veidošanai.
8. Paņēmieni saskaņā ar 7. punktu, kas raksturojas ar to, ka kravas vienības (4), kas izveidotas pirmajā postenī (8), otrajā postenī (9) tiek apgādātas ar vismaz diviem kravas paliktņiem (2).
9. Paņēmieni saskaņā ar 8. punktu, kas raksturojas ar to, ka trešajā postenī (10) ap kravas vienību (4), ieskaitot kravas paliktņus (2), aptin vienu vai vairākas štropes (7) un/vai nospiestu plastmasas aptinumu.

10. Paņēmiens saskaņā ar 9. punktu, kas raksturojas ar to, ka sagatavotās kravas vienības (4) tiek nogādātas uz konteineru, kravas automobili vai citu transportlīdzekli.

11. Paņēmiens saskaņā ar jebkuru no 7. līdz 10. punktam, kas raksturojas ar to, ka sagatavoto kravas vienību (4) izmēri ir pielāgoti konteineru, kravas automobiļa vai tamlīdzīga transportlīdzekļa izmēriem, ar kuru tiks pārvadātas kravas vienības (4).

A SYSTEM AND METHOD FOR CREATION OF LOAD UNITS

Technical Field

The present invention concerns a system for load unit creation, and more specifically a system based on two or more stations used to form the load units. Each load unit is formed of one or more separate packages.

Prior Art

Today it is common to use pallets of various forms and sizes as a base for different load units. Often so called EUR pallets made of wood are used. The pallets as such take up a relatively large place in storing, are heavy and may be cumbersome to handle. Furthermore, the EUR pallets are normally reused, which means that they often are returned without carrying any load. In order to avoid the drawbacks with the previously used systems based on EUR pallets or other forms of pallets it has been suggested that two or more smaller, separate loading members or loading ledges may be used in stead of EUR pallets or other pallets.

Summary of the Invention

As the use of loading ledges has increased, the need of a suitable system and method for creation of separate loading units has been felt.

The system and method for creation of load units should preferably fulfil a number of demands. Thus, one object is that the system and method should be relatively easy to adapt to different situations, both concerning the level of automation and the form and size of the packages forming each load unit.

A further object is that the system and method should be possible to form, to run and maintain at a reasonable cost.

Still a further object is that the system and method should function with different transport means.

According to the present invention a system for load unit creation is established. Said system comprises two or more stations for forming the load units. In a method using said system a first station is used to collect and place one or more packages to form a suitable load unit. In further, at present preferred stations, loading ledges are placed on the load units and one or more straps and/or stretch wrapping are wound around the load units.

Further objects and advantages with the present invention will be obvious for a person skilled in the art when reading the detailed description below of presently preferred embodiments.

Brief Description of the Drawings

The invention will be described further below, by way of an example and with reference to the enclosed drawings. In the drawings:

Figs. 1a to 1i show different load units formed by using the present invention;

Fig. 2 shows a part of the system for creating load units according to the present invention; and

Fig. 3 shows one embodiment of the system of the present invention in a schematic way.

Detailed Description of Preferred Embodiments

The system and method of the present invention is based on the presumption that packages 1 of different sizes and shapes are used to form load units 4. Even though the shown packages 1 all are of a general rectangular form, a

person skilled in the art realises that it is possible to form load units 4 of packages having other general forms.

The present invention is based on the use of several stations 8-10, in which the load units 4 are successively formed. In a first station 8 one or more packages 1 are collected and placed in the form of each desired final load unit 4. In a second station 9 at least one loading ledge 2 is placed at each of two opposite lower edges of the load unit 4. In a third and final station 10 straps 7 and/or stretch wrapping or the like are wound one or more turns around the load unit 4, including the loading ledges 2.

The loading ledges 2 used are normally of the kind described in PCT/DK01/00748 or any corresponding load members. The loading ledges 2 have a generally L-shaped cross section. The loading ledges 2 are to be placed at a lower edge of a package or the like, in such a way that one part of each loading ledge 2 is placed under the package and one part along the side of said package. The part of the loading ledge 2 to be placed under the packages has protrusions to allow a lifting and/or transport means to be slid in under the package.

If e.g. the load units 4 are to be formed of several small packages 1, there may be a need for further stations. Thus, such further stations may include stations where subunits each furnished with loading ledges 2 are formed. (See e.g. Figs. 1c and 1f.) The subunits may be furnished with straps, but it is normally not necessary. A number of subunits are then forward to a station for forming of the final load units 4. It is also possible to have different stations for straps 7 and stretch wrapping. As indicated in Figs. 1g and 1h a plate may be placed at the bottom of the load unit 4, if a large number of small packages 1 form the load unit 4.

A person skilled in the art realises that the packages 1 and load units, respectively, may be transported to

and between said stations in many different ways. Furthermore, the different stations may be totally or partly manual and/or automatic. The expression "totally automatic", as used in this description, means that all actual handling of the packages 1 or load units 4 is done by a machine, robot or the like, which on the other hand may be driven automatically or be controlled by a person.

The packages 1 are normally stored in some kind of ware house. The first station 8 is normally placed in or adjacent the ware house or the like. In said first station 8 the appropriate number of packages 1 to form a load unit are collected. The load units 4 of the present invention may be formed of one single package 1 or by many packages 1. The desired size of the finished load units will govern the number of packages 1 used for each separate load unit 4.

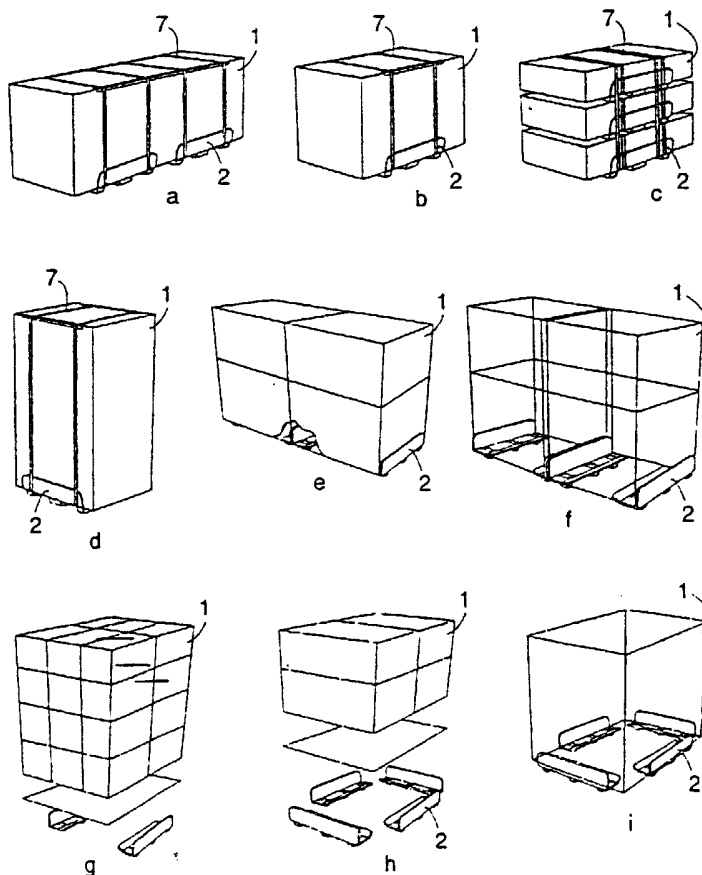
In the embodiment of Fig. 2 the packages 1 forming the load unit 4 are collected on a conveyor 6. By means of the conveyor 6 the load units 4 are brought to the second station 9. In the second station 9 the load units 4 are received in a machine 5, in which each loading unit 4 is furnished with loading ledges 2, in a more or less automatic fashion. In other embodiments the loading ledges 2 are furnished in a more manual way (not shown). The loading unit 4 with loading ledges 2 is then transported away from the machine 5, by means of a further conveyor 6. A person skilled in the art realises that the form of the conveyors may vary, thus bands, belts, rollers, wheels etc. may be used. Furthermore, a person skilled in the art realises that the load units 4 may be transported to and from the machine 5 by any other suitable means, such as industrial trucks, cranes, traverses etc.

In the station 9 comprising the machine for addition of loading ledges 2, a suitable number of loading ledges 2 are added to the load units 4. In Fig. 1 it is schemati-

cally shown that depending on package size, the sensitivity of the contents etc. the number of loading ledges 2 on each side may vary and loading ledges may be placed on several different heights and widths in each loading unit 4.

After the machine 5 furnishing the load units 4 with loading ledges 2 the load units are brought to the third station 10. In said station 10 the load units are furnished with straps 7 and/or stretch wrapping or the like. Normally, a machine, well known in the art, is used to furnish the load units 4 with straps 7, stretch wrapping or the like. However, it is also possible to apply the straps 7, stretch wrapping or the like in a more manual way.

When the load units 4 leave the third station 10, they are ready for transport in any suitable way. Thus, the load units 4 are forward to a container, lorry, truck or any other means of transportation.



(57) Abstract: The present invention concerns a system and a method for load unit (4) creation. The system includes two or more stations (8-10), in which the load units (4) are formed. In a first station (8), one or more packages (1) are collected and placed to form the load unit (4). In later stations loading ledges (2) are added to the load units (4), and straps (7) and/or stretch wrapping is wound around the load units (4).

CLAIMS

1. A system for load unit (4) creation, **characterized** by two or more stations (8-10), in which the load units (4) are formed.

2. The system of claim 1, **characterized** in that one station (8) has means for collecting one or more packages (1) and placing said package(s) (1) to form a desired load unit (4).

3. The system of claim 1 or 2, **characterized** in that one station (9) has means to furnish the load unit (4) with two or more loading ledges (2).

4. The system of claim 3, **characterized** in that the number of loading ledges (2) used and their placement are based on the size and form of the packages (1), which are to form the load unit (4).

5. The system of claim 3 or 4, **characterized** in that a second station (9) comprises a machine (5) for placing the loading ledges (2) at the load units (4).

6. The system of any of the previous claims, **characterized** in that one station (10) has means to furnish each load unit (4) with one or more straps (7) and/or a stretch wrapping wound around the outside of the load unit (4), including the loading ledges (2).

7. A method for forming a load unit (4), **characterized** in that in a first station (8), one or more packages (1) are collected and placed to form a load unit (4).

8. The method of claim 7, **characterized** in that the load units (4) formed in the first station (8) are furnished with at least two loading ledges (2) in a second station (9).

9. The method of claim 8, **characterized** in that the one or more straps (7) and/or stretch wrapping is wound one or more turns around the load unit (4), including the loading ledges (2), in a third station (10).

10. The method of claim 9, characterized in that the finished load units (4) are forward to a container, lorry, truck or other means of transportation.

11. The method of any of the claims 7 to 10, characterized in that the size of the load units (4) are adapted to the size of a container, a truck, a lorry or the like, by which the load units (4) are to be shipped.

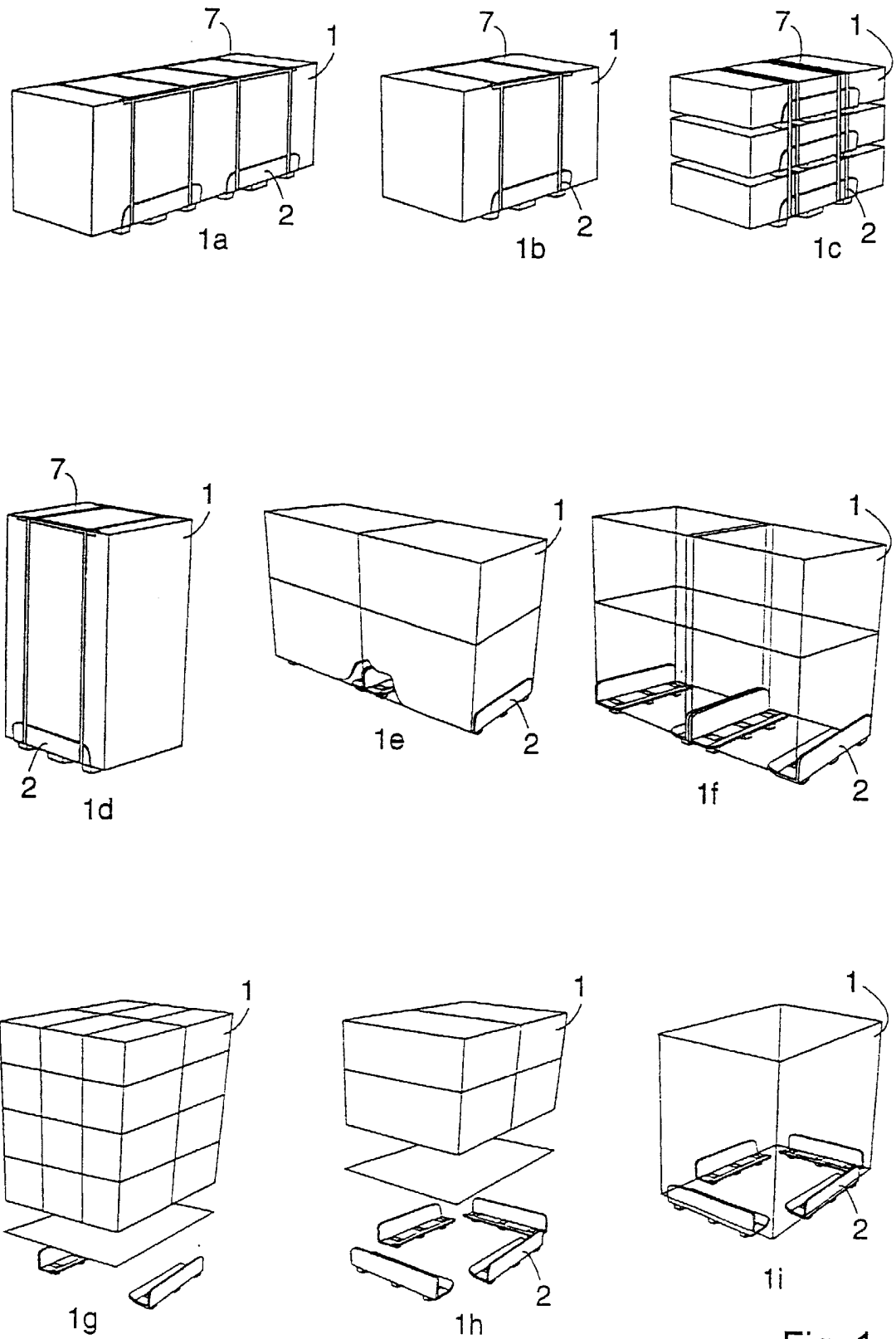


Fig. 1

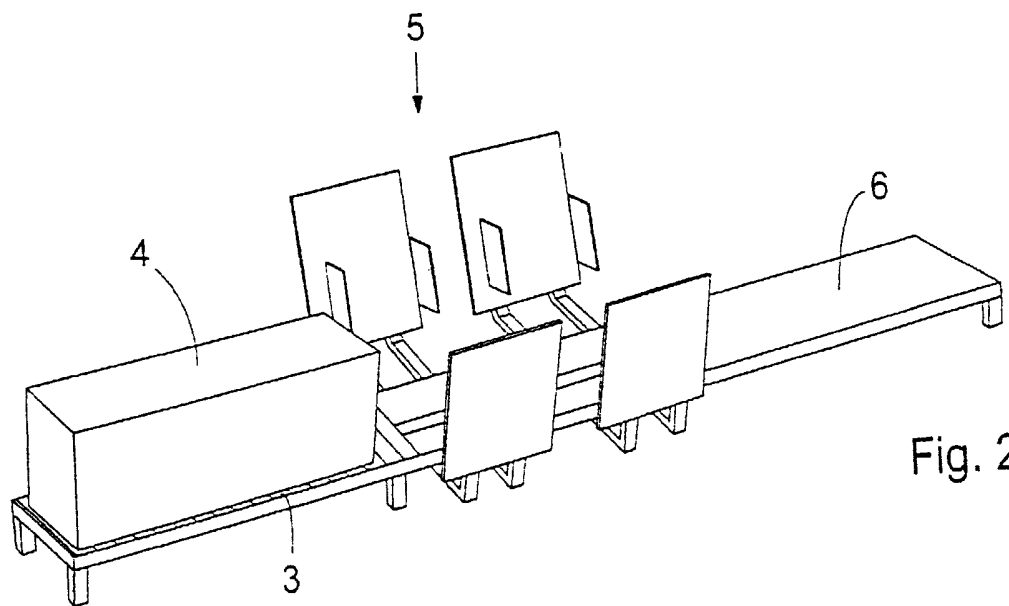


Fig. 2

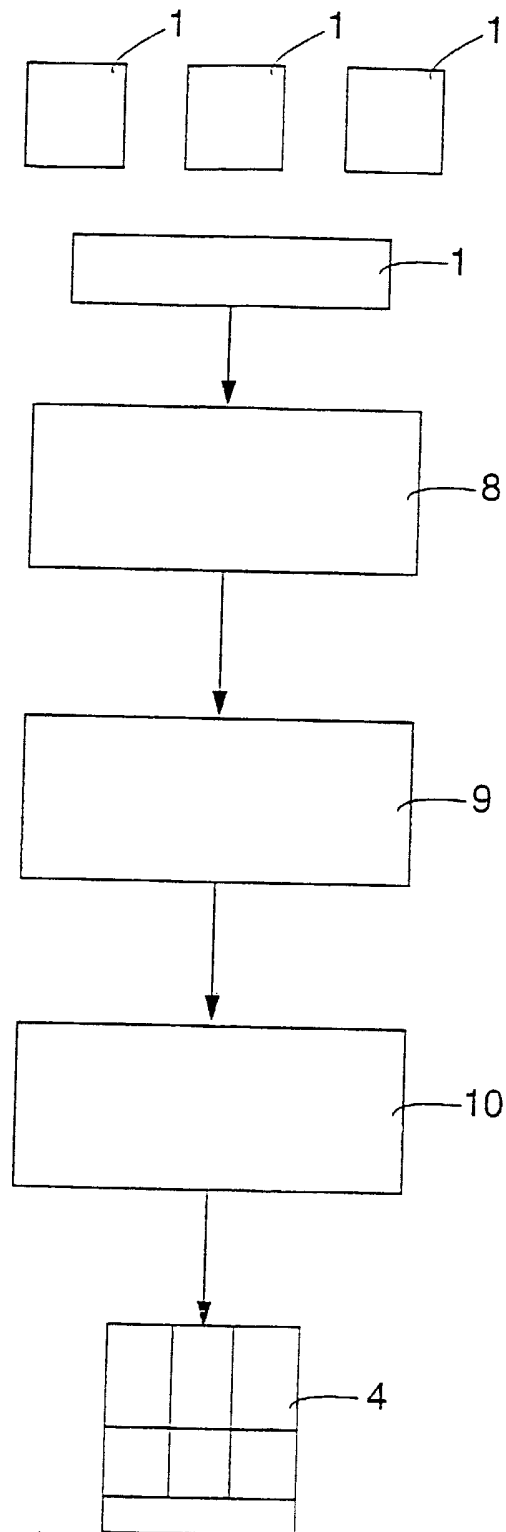


Fig. 3