

A METHOD AND UNIT LOAD FOR DISTRIBUTING ARTICLES

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Technical Field

The present invention relates to a method of distributing articles in a palletized form from a supplier of the articles. It also relates to a unit load for such distribution.

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Background of the Invention

The conventional way to distribute palletized articles is by using traditional pallets, most often wooden pallets of standardized dimensions, on which the articles are loaded and often attached, for example by straps.

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Wooden pallets are so widely used that their advantages are rarely questioned. However, there are a number of important disadvantages with wooden pallets:

- It is expensive to keep a return system for wooden pallets running.

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- A lot of transport facility is used for transporting empty wooden pallets, that are bulky and heavy.

- A wooden pallet has a short lifetime, which adds to the cost.

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- The use of the bulky and heavy wooden pallet reduces the transport efficiency.

- Quite a lot of space is needed for storing the wooden pallets at the supplier and at other places in the distribution network.

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- The standard size of the pallets is not optimal for many articles and carriers, such as containers, goods waggons, and trucks and trailers.

A prior attempt to decrease the disadvantages connected to wooden pallets is to use a loading panel of corrugated cardboard during distribution. Such a loading panel can have a lower height and weight than the wooden

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panel and is intended to be discarded after one use. Certain advantages with regard also to price and versatility are obtained, but still a loading panel of the above type does not represent an optimal solution to the problem of creating a distribution method without the disadvantages mentioned above.

The main object of the invention is accordingly to create a method of distributing articles in a palletized form from a supplier of the articles.

10 **The Invention**

The problems with earlier used distribution methods are according to the invention obviated and a greatly improved distribution method obtained by placing - at the supplier - one or more articles on two or more loading ledges to form a unit load, each ledge comprising an L-shaped profile having projections for supporting the unit load at a certain distance over its support and being positioned at a lower edge of the unit load, and transporting the unit load on its loading ledges to a receiver of the articles.

By the provision of the supporting projections on the loading ledges the formed unit load can be handled by handling equipment, such as fork lift trucks, used for handling unit loads on wooden pallets.

25 Normally, the unit load is provided at the supplier (often the manufacturer of the articles) with circumferential straps (extending over the loading ledges) and/or stretch or shrink wrapping or the like. In this way the unit load with its loading ledges is held together and is also protected against the environment.

30 From the supplier the unit load may be transported by ordinary transport means to a warehouse, where it may be stored for further distribution to a retailer or the like, where the article leaves the distribution system.

Alternatively, the unit load can be transported directly to the retailer or the like.

In the former case it may be possible to use a traditional wooden pallet at the transport from the warehouse to the retailer and for storing the unit load there, if the storing system is adapted to wooden pallets.

In this case the wooden pallet is returned for renewed use in a traditional pallet return system.

The loading ledges are preferably produced of recyclable plastic, for example uncoloured polypropylene (PP). The production method may be injection moulding. Other materials and production techniques are possible.

The loading ledges may be returned for renewed use on new unit loads, but it may be advantageous to recycle them, for example by grinding them, and to return the material to a producer of loading ledges. Alternatively, the material can be put on the ordinary market as plastic raw material. In the latter case it is of special importance to have the plastic material uncoloured.

With the use of loading ledges as set out above it will be possible to use one size only for all applications. The size of the unit load is not dependent on any pallet size but rather on the size of the articles, provided at their bottom edges with two or more loading ledges with downwardly extending projections allowing handling by traditional handling equipment. If the articles are long, two or even three loading ledges may be provided at each lower edge.

The use of loading ledges means in other words that an optimal unit load may be built according to the goods or articles, not according to the pallet size as today.

Further, the tara weight and the price for the loading ledge are very low.

Empty loading ledges may be stacked for transportation, which thus may be very effective.

A unit load for distribution in a palletized form from a supplier of articles in the unit load to a receiver may according to the invention have two or more loading ledges positioned at lower edges of the unit load comprised
5 of one or more articles.

In its basic form the unit load has one loading ledge at each opposing lower edge, but if the unit load is especially long, it may have two or more loading ledges. Also, loading ledges may be provided at all lower edges of
10 the unit load or within the unit load.

Circumferential straps may be provided around opposing loading ledges.

For example if the unit load has a considerable number of separate articles (or cardboard boxes) a base
15 plate may be arranged between the articles and the loading ledges.

The Drawings

The invention will be described in further detail below under reference to the accompanying drawings, in
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Fig 1 is a perspective view of a loading ledge to be used in the method according to the invention,

Fig 2 is an overview of the distribution method according to the invention, and

25 Figs 3a-i show examples of unit loads with loading ledges.

Detailed Description of the Invention

A loading ledge 1 is shown in Fig 1. It is a preferably injection moulded, L-shaped profile of
30 recyclable plastic, preferably polypropylene (PP). Its lower leg 2 is provided with projections 3, in the shown case three projections, for supporting a unit load above the ground or other support and allowing handling with ordinary handling equipment utilized for goods on ordinary
35 wooden pallets presently widely used in distribution

systems. Its upper leg 4 is generally plain and is to bear against a vertical side surface of a unit load to be supported by the loading ledges.

In a practical (but non-limiting) case the overall length of the loading ledge 1 may be 760 mm, the widths of the lower leg 2 and the upper leg 4 180 mm and 100 mm, respectively. The projections 3 may have a height of 35 mm and a width of 75 mm. The central projection may have a length of 160 mm, and each of the two outer projections may have a length of 75 mm.

For reasons set out below, it is of advantage to use uncoloured plastic for the loading ledge 1.

Reference is now made to Fig 2. Reference numeral 10 therein indicates a producer of the loading ledges 1 to be delivered to a supplier or manufacturer 11 of articles or goods. At the supplier 11 the articles are placed on two or more loading ledges 1 to form a unit load, preferably provided with straps and/or stretch or shrink wrapping.

From the supplier 11 the unit loads are transported for example by a truck or lorry 12 to a central warehouse 13 for later delivery to one of several retailers 14 supplied with articles from the warehouse 13. As is indicated by a lower arrow transport may alternatively occur directly from the supplier 11 to each retailer 14.

The use of traditional wooden pallets 15 (from a producer 16 thereof) between the warehouse 13 and the retailer 14 is suggested in Fig 2. The reason for this may be that the storing system at existing retailers 14 may be based on the use of wooden pallets on store beams. As a development, the additional use of wooden pallets 15 can be suspended with.

It is suggested by a dotted arrow in Fig 2 that loading ledges 1 can be returned from the retailer 14 to the warehouse 13.

The used loading ledges 1 could well be returned to the supplier or manufacturer 11 for renewed use. Among other things because the condition of each loading ledge 1 cannot be guaranteed, it is however presently preferred to use a recycling system for the loading ledges 1. The used ledges are accordingly ground, for example in a recycle company 17. From there the material may be delivered back as raw material to the loading ledge producer 10 or be put on the ordinary market, if this is advantageous for example from an economical viewpoint. Quite naturally, it is preferred to keep the plastic material uncoloured.

The use of loading ledges as set out above may reduce the needed storage space in for example the warehouse 13 by 30-35% and also increase the filling rate at transport with some 35%. The more compact filling during transport will prevent mutual movements and decrease transport damages to a minimum.

With present dimensions some 500 loading ledges/m³ can be transported as compared to about 7 standard wooden pallets/m³, which is a theoretical saving of some 97%.

Fig 3 illustrates certain possibilities to arrange unit loads. Figs 3b and d represent "basic" unit loads on two loading ledges 1 each with for example two straps 20. Fig 3a shows a longer unit load with two loading ledges 1 at each side and for example four straps. In Fig 3c three sub-unit loads - each with two loading ledges 1 and two straps 20 - are stacked and held together by two further straps 21 to form a unit load.

In Fig 3e four articles (or cardboard boxes) are arranged on four loading ledges 1, as is further illustrated in Fig 3f. Straps, not shown, may finalize the unit load.

Fig 3g illustrates 32 smaller articles (or cardboard boxes) forming a unit load with two loading ledges 1. In this case use is made of a base plate 22, for example

hardboard or plastic. Straps, not shown, may finalize the unit load. Fig 3h illustrates a unit load with four articles and a base plate 22. Here, four loading ledges 1 are used, one at each bottom edge.

- 5 Fig 3i finally illustrates a unit load with four loading ledges in a similar fashion as is shown in Fig 3h. Further similar possibilities are of course feasible.

CLAIMS

1. A method of distributing articles in a palletized form from a supplier (11) of the articles, wherein one or more articles are placed - at the supplier (11) - on two or more *per se* known loading ledges (1) to form a unit load, each ledge comprising an L-shaped profile made of recyclable plastic and having projections (3) for supporting the unit load at a certain distance over its support and being positioned at a lower edge of the unit load, and transporting the unit load on its loading ledges from the supplier (11) of the articles, **characterized** in that after use, the material in the loading ledges is ground prior to transportation to a loading ledge producer (10) for subsequent material reuse.

2. A method according to claim 1, wherein the plastic is uncoloured.

3. A method according to claim 1, wherein the plastic is polypropylene (PP) and the production method is injection moulding.

4. A method according to claim 1, wherein the recycled material is returned to a producer (10) of loading ledges (1) for producing new loading ledges or is put on the ordinary market as plastic raw material.

5. A method according to claim 1, wherein the unit load is provided at the supplier (11) with circumferential straps (20, 21) and/or stretch or shrink wrapping or the like.

6. A method according to claim 1, wherein the unit load is transported to a warehouse (13) for further transport to a retailer (14).

7. A method according to claim 1, wherein the unit load is transported to a retailer (14).

8. A method according to claim 3, wherein the unit load is placed on a traditional pallet (15), for example a wooden pallet, before transport to the retailer (14).

9. A method according to claim 5, wherein the traditional pallet (15) is returned for renewed use in a traditional pallet return system.

10. A method according to claim 1, wherein one loading ledge (1) is provided at each opposing lower edge of the unit load.

11. A method according to claim 1, wherein two or more loading ledges (1) are provided at each opposing lower edge of the unit load.

12. A method according to claim 1, wherein loading ledges (1) are provided at all four lower edges of the unit load.

13. A method according to claim 1, wherein a base plate (22) is arranged between the unit load and the loading ledges (1).

14. A method according to claim 1, wherein loading ledges (1) are provided within the unit load.