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(54) Packaging system preferably for mattresses

(57) The present invention refers to a packaging system (10), more particularly to a packaging system (10) to package at least two mattresses (18) to be stacked one upon another so as to form a stack.

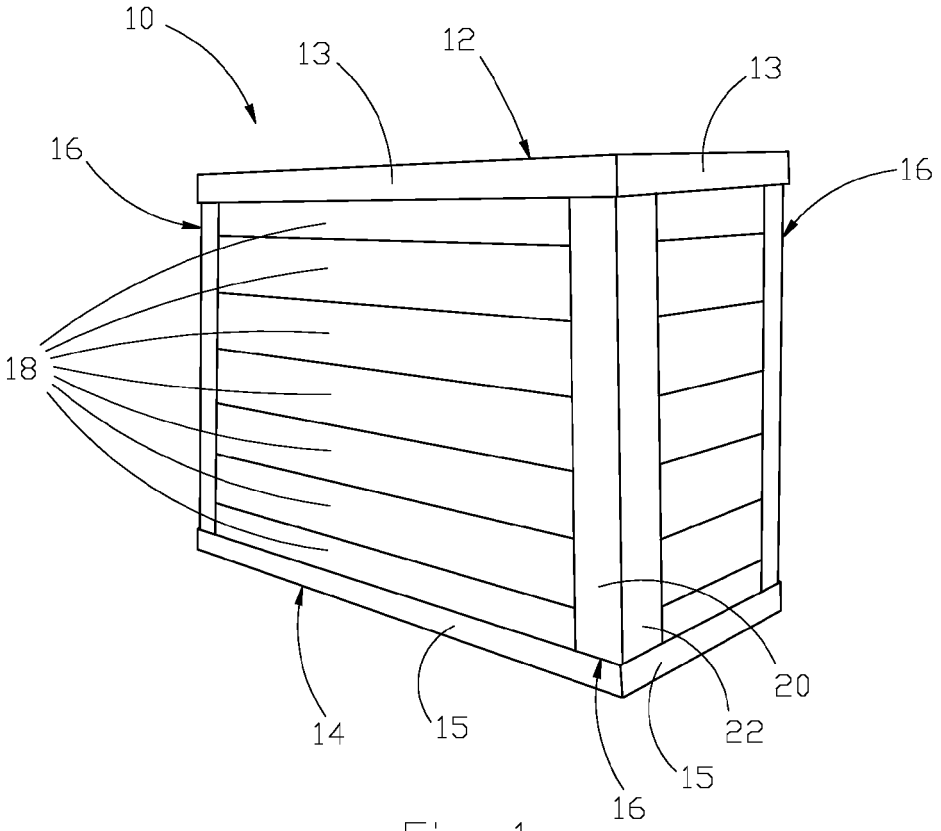


Fig. 1

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Description

[0001] The present invention refers, in general, to a packaging system. More particularly, the present invention refers to a packaging system to be preferably utilized to package two or more mattresses.

[0002] In the sector of manufacture and transport of mattresses from the production plant to the storehouse of the customer, or for the handling of two or more mattresses, the loading and unloading is accomplished for each mattress separately.

[0003] Said mattress loading and unloading modality involves costs and mattress handling times which can not be easily measured and controlled owing to the disposition of the mattress after their transport.

[0004] For instance, after the mattresses have loaded individually and transported on a truck, the disposition of the mattresses results to be changed, which could cause errors in the computation of the mattresses or, in any case, other problems on handling the mattresses, such as difficulties in the unloading operations. All said inconveniences could provoke a waste of time in the transport operations

[0005] An aim of the invention is to remove the aforesaid inconveniences and further ones through a packaging system which allows to reduce the mattress handling time.

[0006] Another aim of the invention is to carry out a packaging system allowing to transport mattresses more easily.

[0007] A further aim of the invention is to carry out a packaging system allowing to load and unload mattresses more easily on and from the means of transport utilized.

[0008] These aims and other aims are all reached according to the invention through a packaging system adapted to package two or more mattresses by stacking them one upon another so as to form a stack.

[0009] The packaging system is characterized by the fact of comprising a top cover, adapted to cover a top portion of the stack of mattresses, a bottom cover, adapted to cover a bottom portion of the stack of mattresses, one or more corner elements, adapted to cover a lateral portion of the stack of mattresses. The one or more corner elements extend from the bottom cover to the top cover.

[0010] A packaging system having the so-described structure allows to assemble two or more mattresses in an only package which is transported and managed more easily on saving time and money for the handling of said package.

[0011] Besides, the one or more corner elements extending from the bottom cover to the top cover allow to stiffen the package.

[0012] Advantageously, the one or more corner elements can have an end which is inserted between the stack of mattresses and the top cover and/or the bottom cover so as to maintain the position of the one or more corner elements more stably than the top cover and/or the bottom cover.

[0013] In addition, the one or more corner elements can be placed at a corner of the stack of mattresses, and the ends of the one or more corner elements can be inserted between the stack of mattresses and the top cover and/or the bottom cover. Indeed, if the corner elements are positioned at the corners, the one or more corner elements can improve the stiffening of the package. Since their ends are inserted between the stack of mattresses and the top cover and/or the bottom cover, it is possible to take advantage of the adherence of the top cover and/or the bottom cover to the stack of mattresses in order to keep the one or more corner elements in position.

[0014] Advantageously, the top cover and/or the bottom cover can comprise a base from whose perimeter a raised edge protrudes in a perpendicular direction. In this way, it is possible to obtain a bottom cover and/or a top cover having a cavity. When the base of the bottom cover and/or the base of the top cover are in contact with a mattress, the respective raised edges allow to keep the covers centered to the mattress and allow the covers to keep their position relative to the mattress with which they are in contact.

[0015] Besides, at least one hole can be formed in the top cover and/or in the bottom cover in order to obtain a further lightening.

[0016] Advantageously, the one or more corner elements can be made by using the material obtained from the forming of the hole in the top cover and/or in the bottom cover. In this way, the waste material can be reused to obtain the quantity of material needed to carry out the packaging system.

[0017] Besides, a film can be comprised to wrap, at least partially, the top cover, the bottom cover, the corner elements and the mattresses so as to give a greater stability and stiffness to the package.

[0018] In addition, the film can be made of a heat-shrinkable material in order to give a better film adherence to the other elements of the packaging system as well as a consequent greater stiffness.

[0019] Advantageously, the one or more corner elements can be L-shaped and can comprise a first side and a second side, arranged at a right angle, so as to have a greater torsional stiffness.

[0020] Besides, the one or more corner elements can be arranged at one of the four corners of the bottom cover so that the first side of the one or more corner elements is adjacent to a first portion of the raised edge and the second side is adjacent to a second portion of the edge, perpendicular to the first portion.

[0021] The one or more corner elements can be arranged at one of the four angles of the top cover so that the first side of one or more corner elements is adjacent to a first portion of the raised edge and the second side is adjacent to a second portion of the edge, perpendicular to the first portion.

[0022] Said arrangement of the one or more corner

elements in relation to the bottom cover and/or the top cover, can allow to reach a greater torsional stiffness of the one or more corner elements as well as the maintenance of the position of the one or more corner elements in respect to the bottom cover and/or the top cover.

[0023] Advantageously, the top cover, the bottom cover and one or more corner elements can be made of cardboard.

[0024] More advantageously, a packaging system can comprise a strap that wraps, at least partially, the top cover, the bottom cover, the corner elements and the mattresses so as to obtain a greater structural stiffness.

[0025] In addition, a packaging system can comprise four corner elements, each of them being arranged at a corner of the stack of mattresses so as to protect each corner of the stack of mattresses from any shocks and to contain the two or more mattresses in all directions. Accordingly, each vertex of the top cover is connected to the corresponding vertex of the bottom cover.

[0026] Further features and details of the invention will be better understood from the following specification that is given as a non-limiting example as well as from the accompanying drawing, wherein:

Fig. 1 is a schematic axonometric view of a packaging system according to the invention;
Fig. 2 is a schematic front view of the packaging system in figure 1.

[0027] With reference to figures 1 and 2, number 10 denotes a packaging system, adapted to package mattresses 18 which, in the represented case, have a rectangular shape. The packaging system 10 comprises a top cover 12, a bottom cover 14 and four corner elements 16 of which three are visible in figure 1 and two are visible in figure 2.

[0028] The bottom cover 14 comprises a supporting base resting on the ground and showing a rectangular form and dimensions that are substantially equal to the dimensions of the mattresses 18. A raised edge 15 protrudes from the perimeter of the base of the bottom cover 14 in a perpendicular direction. The raised edge 15 is formed by four portions, perpendicular to each other, so that the bottom cover 14 is concave and once the structure is put on the ground, said concavity is facing upwards.

[0029] The top cover 12 having an analogous shape to the bottom cover 14 comprises a base having dimensions equal to those of the supporting base of the bottom cover 14, and an edge 13 that protrudes perpendicularly from the perimeter of the base and has an analogous shape to the raised edge 15. The top cover 12 has therefore a concave structure facing downwards when the structure is used to package mattresses.

[0030] The corner elements 16 are L-shaped and each of them comprises a first side 20 and a second side 22 which are arranged at a right angle to each other. Each corner element 16 is arranged at one of the four corners of the bottom cover 14 so that the first side 20 is adjacent to a first portion of the raised edge 15 and the second side 22 is adjacent to a second portion of the edge 15, perpendicular to the first portion.

[0031] Likewise, each corner element 16 is arranged at one of the four corners of the top cover 12.

[0032] In the inside of the packaging system 10 according to the present embodiment there are contained seven mattresses 18, stacked one upon another so as to form a stack of mattresses. Obviously, the number of the mattresses contained inside the system 10 can vary and be a number other than seven, according to the packaging and/or transport needs.

[0033] The material used to produce the top cover 12, the bottom cover 14 and the four corner elements is cardboard but it is obvious that said components could be made of different materials such as plastic materials.

[0034] Besides, the packaging system 10 comprises a stretchable film arranged around the four corner elements 16 so as to internally include the edge 13 of the top cover 12, the edge 15 of the bottom cover 14 and the mattresses 18. Obviously, also the supporting base of the bottom cover 14 and the base of the top cover 12 can be covered by a stretchable film. The stretchable film can be made, for instance, of a heat-shrinkable material or, in any case, a material that if exposed to a heat source such as hot air, shrinks to about 50% of the initial dimension in order to adhere to the object around which it has been wrapped. After cooling, the film maintains its new shape.

[0035] The stretchable film gives a further solidity, stability and reliability to the whole packaging system 10 so as to facilitate the transport and handling of the package.

[0036] In addition to the stretchable film, it is possible to use also one or more straps in order to make the packaging system 10 even more stable and reliable.

[0037] A possible procedure of utilization and assembly of the packaging system 10 is described below in order to clarify the mutual arrangement of the various components.

[0038] A suitably sized bottom cover 14 is placed on the ground or on a pallet. A first quantity of mattresses 18, for instance three mattresses, is placed inside the bottom cover 14. Then, the four corner elements 16 are positioned, their respective end directed towards the ground being inserted between the first quantity of mattresses 18 and the raised edge of the bottom cover 14. In this way, the corner elements are fixed and an unwished slipping out of the mattresses is prevented.

[0039] Then, a second quantity of mattresses 18, for instance four mattresses, is stacked so as to obtain a total of seven mattresses or, in any case, to reach a predetermined number of mattresses, or a number greater than two, the stacked mattresses being at least two.

[0040] Then, the top cover can be positioned and oriented with the concavity towards the ground so that the end of the corner elements 16, directed towards the top cover 12, is inserted between the second quantity of mat-

tresses 18 and the raised edge of the top cover 12.

[0041] Then, the so-obtained package is wrapped with the stretchable film and/or with a possible strap.

[0042] The so-obtained packaging system 10 prevents a slipping out of mattresses 18 and corner elements 16.

[0043] According to a variant of the invention, the top cover 12 and/or the bottom cover 14 can have one or more holes in order to lighten the relative component.

[0044] If one or more portions are extracted from the top cover 12 and/or the bottom cover 14, it is possible to obtain one or more corner elements 16 in order to further save material.

[0045] Unlike the prior art, the particular structure of the packaging system 10 allows to obtain the following advantages. In fact, the known loading and unloading modalities manage the single mattresses by loading and unloading them individually, disorderly and chaotically.

[0046] The present invention allows a producer of mattresses to automate the palletizing of mattresses through a plant or a machine which produces automatically one or more packages containing mattresses as in the packaging system 10.

[0047] Besides, a producer of mattresses can move the mattresses from the place of production to the means of transport such as trucks, with a with greater control and a consequent possibility of standardization.

[0048] The standardization of the procedures allows to avoid errors in the computation of the mattresses and/or the handling problems of the prior art as described previously.

[0049] Another significant advantage for a producer of mattresses is the possibility of loading the packages containing the mattresses on the trucks in a systematic, standardized manner with a consequent reduction of the loading time.

[0050] The advantages for a client who receives the so-packaged mattresses from the producer are a considerable reduction of time and cost of handling and accommodation of the goods in the logistical facilities.

[0051] In addition, the unloading and the handling of the mattresses from the trucks and their storage and accommodation in the respective logistical facilities will be easier for a client who receives the packages according to the invention.

[0052] It is to be intended that variants of the packaging system according to the invention are included in the scope of protection of the invention.

[0053] Finally, a packaging system utilized in sectors different from the handling of mattresses but having structural features similar or equivalent to the previously described ones and claimed as follows is to be intended as included in the scope of protection of the present invention.

Claims

1. Packaging system (10) to package at least two mattresses (18), stacked one upon another to form a stack, **characterized by** the fact of comprising:

- a top cover (12), adapted to cover a top portion of the stack of mattresses (18);
- a bottom cover (14), adapted to cover a bottom portion of the stack of mattresses (18);
- at least one corner element (16), adapted to cover a lateral portion of the stack of mattresses (18);

said at least one corner element (16) extending from the bottom cover (14) to the top cover (12).

2. Packaging system (10) according to claim 1, wherein the at least one corner element (16) has an end which is inserted between the stack of mattresses and the top cover (12) and/or the bottom cover (14).

3. Packaging system (10) according to one of the preceding claims, wherein the at least one corner element (16) is placed at a corner of the stack of mattresses (18) and wherein the ends of said at least one corner element (16) are inserted between the stack of mattresses (18) and the top cover (18) and/or the bottom cover (14).

4. Packaging system (10) according to one of the preceding claims, wherein the top cover (12) and/or the bottom cover (14) comprise a base from whose perimeter a raised edge (13; 15) protrudes in a perpendicular direction. Packaging system (10) according to one of the preceding claims, wherein at least one hole is formed in the top cover (12) and/or in the bottom cover (14).

5. Packaging system (10) according to one of the preceding claims, wherein the at least one corner element (16) is made by using the material obtained from the forming of the hole in the top cover (12) and/or in the bottom cover (14).

6. Packaging system (10) according to one of the preceding claims, wherein a film is comprised to wrap, at least partially, the top cover (12), the bottom cover (14), the corner elements (16) and the mattresses (18).

7. Packaging system (10) according to the preceding claim, wherein the film is made of a heat-shrinkable material.

8. Packaging system (10) according to one of the preceding claims, wherein the at least one corner element is L-shaped and comprises a first side (20) and a second side (22) which are arranged at a right angle.

9. Packaging system (10) according to the preceding

claim, wherein the at least one corner element (16) is arranged at one of the four corners of the bottom cover (14) so that the first side (20) of the at least one corner element (16) is adjacent to a first portion of the raised edge (15) and the second side (22) is adjacent to a second portion of the edge (15), perpendicular to the first portion.

10. Packaging system (10) according to claim 10, wherein the at least one corner element (16) can be arranged at one of the four angles of the top cover (12) so that the first side (20) of the at least one corner element (16) is adjacent to a first portion of the raised edge (13) and the second side (22) is adjacent to a second portion of the edge (13), perpendicular to the first portion.

11. Packaging system (10) according to one of the preceding claims, wherein at least one of said top cover (12), bottom cover (14), at least one corner element (16), is made of cardboard.

12. Packaging system (10) according to one of the preceding claims, wherein a strap is comprised to wrap, at least partially, the top cover (12), the bottom cover (14), the corner elements (16) and the mattresses (18).

13. Packaging system (10) according to one of the preceding claims, wherein four corner elements (16) are comprised, each of them being arranged at a corner of the stack of mattresses (18).

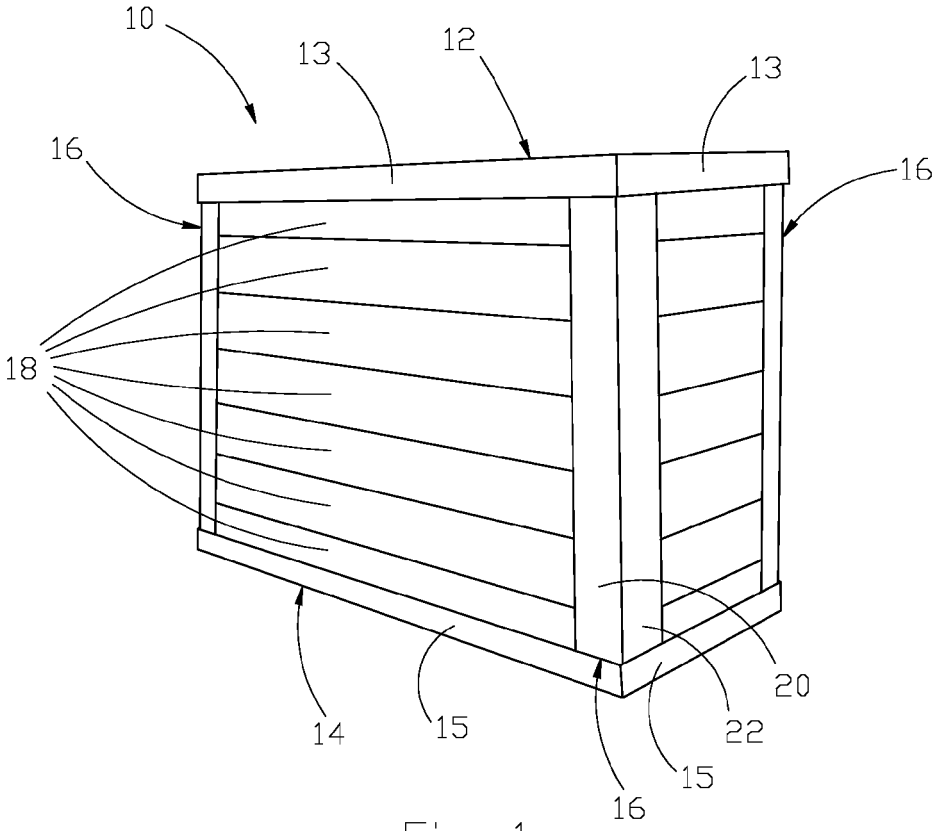


Fig. 1

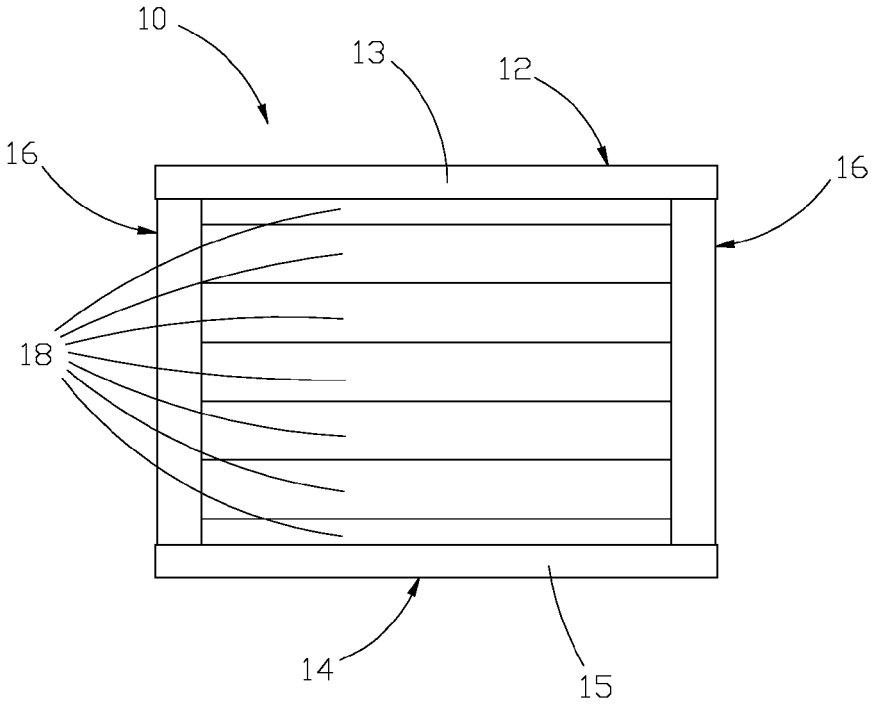


Fig. 2

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EUROPEAN SEARCH REPORT

Application Number
EP 13 17 8314

DOCUMENTS CONSIDERED TO BE RELEVANT

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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	7 November 2013	Jervelund, Niels

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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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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