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(71) Applicants:
• **Sanchez Renasco, Jesus**
45930 Mentrída (Toledo) (ES)
• **Sanchez Renasco, José Maria**
45930 Mentrída (Toledo) (ES)

(72) Inventors:
• **Sanchez Renasco, Jesus**
45930 Mentrída (Toledo) (ES)
• **Sanchez Renasco, José Maria**
45930 Mentrída (Toledo) (ES)

(74) Representative: **Polo Flores, Luis Miguel**
Polopatent
Doctor Fleming, 16
28036 Madrid (ES)

(54) **MACHINE FOR THE IN-SITU GLUING OF CORNER PIECES WHICH ARE INTENDED TO PROTECT PALLETISED LOADS**

(57) Apparatus for applying adhesive to edgeboards (3) immediately before fixing said edgeboards (3) to the edges of the palletized block that has a support base (1) in which a seat base (2) for the edgeboards (3) is defined. A column (4) supports a head (5) having an adhesive deposit with corresponding dosing means behind the seat base (2). It also has a nozzle (6) that supplies the adhesive dosage to the edgeboard (3) in the selected point of it by facing the edgeboard to the nozzle and pushing a pedal (7). Thus, the operator selects the number of adhesive points to be arranged along the edgeboard (3) and its distance.

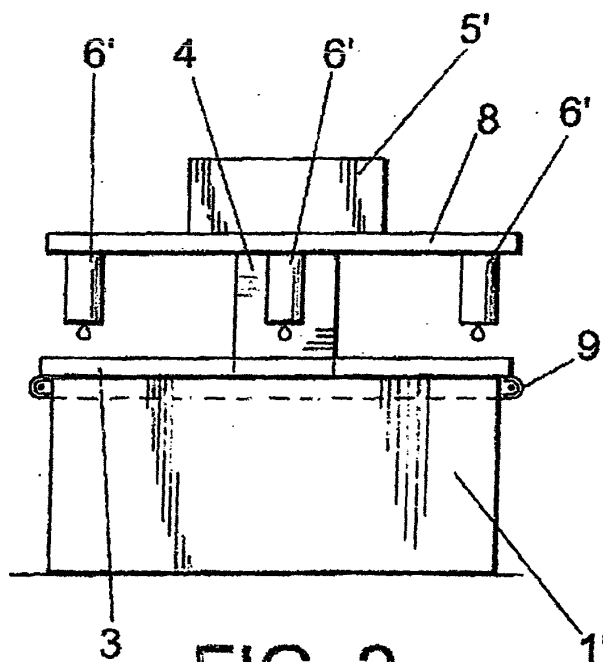


FIG. 2

Description**DESCRIPTION****OBJECT OF THE INVENTION**

[0001] The present invention is related to an apparatus that has been specially intended to apply an adhesive dosage suitable to carry out a temporary fixing of edgeboards used in the protection of palletized products to a pallet before the final packaging thereof.

[0002] The apparatus is especially suitable to be used in palletizing cardboard boxes, for example those used for transporting fruit and vegetable products.

BACKGROUND OF THE INVENTION

[0003] For palletizing different type of products, which finally form a prismatic-rectangular block that extends upwardly from the pallet, it is frequent to place edgeboards or protection profiles in correspondence to the vertical edges of said block.

[0004] Edgeboards have different structures, either single based on cardboard or similar, or mix for example based on a combination of kraft, aluminium and polyethylene. In every case the most suitable material is used depending on the mechanical strength needed for said edgeboards, or if it is hoped that they must suffer weather effects or particular environments such as cold-storage chambers, wet warehouses, etc.

[0005] Its profile is also variable depending on every specific use. Thus, there are edgeboards of dihedral form, edgeboards with trapezoidal-isosceles profile, flat edgeboards, half round edgeboards, etc.

[0006] In the preferred practical embodiment of the above mentioned invention, the one of palletizing boxes for transporting fruit and vegetable products, it is usual that the stack height exceeds 1.5 meters so that the length of edgeboards must be fitted to it.

[0007] These edgeboards are definitely fixed to the stack block when its final packaging is made, but in the meantime they must be fixed to the block provisionally, for example with adhesive tape, using three portions of tape disposed transversally, one in a middle zone of the edgeboards and the other two in the end zones. This implies a considerably slow operation, with a very negative impact in the cost level of big warehouses, in which a very important number of pallets are handled on a daily basis. One alternative is to use edgeboards whose adapting surface to the stack block is covered with a contact adhesive layer complemented by a protective sheet, such as, for example a silicone paper sheet, which is disposable when edgeboards are fixed. This solution, although allows speeding up the manual assembly process of edgeboards, it is achieved with a significant increment of costs.

DESCRIPTION OF THE INVENTION

[0008] The apparatus of the invention for adhesiving edgeboards is based on a new operative concept according to which the adhesive is applied immediately before applying the edgeboard to the stack block, so that an unprotected contact adhesive can be used with the consequent cost saving because of avoiding using a silicone paper protector or any similar element. Furthermore, the assembly of the edgeboard on the block is much easier since it is unnecessary to remove said protecting paper.

[0009] According to the foregoing description, the recommended apparatus, in its simplest version, is made with a support base having a seat base for the edgeboard and a head having the corresponding adhesive deposit and supplying nozzle. The nozzle supplies an adhesive dosage to the edgeboard before setting it on the seat base, either when the operator pushes a pedal or when a sensor detects the presence of the edgeboard under the nozzle.

[0010] The apparatus productivity can be raised providing it with a support base in which its length is at least coincident with that of the edgeboard, and providing the head with as many nozzles as application points for adhesive have been provided on the edgeboard. Obviously, said nozzles must be conveniently separate one another. In this case, the feeding of edgeboards to the apparatus can be manual or automatic in which case, a conveyor belt is provided for positioning the edgeboards under the nozzles, and afterward expelling them automatically after receiving adhesive. Nonetheless, this multi-nozzle alternative of the apparatus also allows the possibility of feeding and taking out edgeboards manually in the same way as in the previous embodiment.

[0011] Finally, and because of space problems, the multi-nozzle head of the previous embodiment can have a vertical layout, so that the nozzles are also vertically aligned. In this case, the operator will have to couple each edgeboard to the set of nozzles manually to apply adhesive, either by means of the pedal system or the sensor systems above mentioned.

DESCRIPTION OF THE DRAWINGS

[0012] To complement the present description and to help to better understand the main characteristics of the invention, a set of drawings is attached as constitutive part of said description according to a preferred embodiment thereof, wherein the following has been depicted with illustrative and non-limitative purpose:

Figure 1. It shows a front elevation view of an apparatus for "in situ" adhesiving edgeboards used in the protection of palletized blocks according to the simplest embodiment of the present invention.

Figure 2. It shows a depiction similar to that illustrated in the previous figure, but the apparatus has as many adhesive applying nozzles as points have been intended on the edgeboard for this purpose.

Figure 3. It finally shows a side elevation view of another embodiment of the apparatus in which edgeboards are fixed in vertical position.

PREFERRED EMBODIMENT OF THE INVENTION

[0013] In view of the above mentioned figures, and specifically in view of Fig. 1, it can be seen that the apparatus of the invention comprises a support base (1) with a base or upper deck (2) that receives the edgeboards (3) to be adhesived. The support base (1) extends backwardly as a column (4) that has a head end (5) which, not only receives the container deposit with adhesive and the corresponding dosage means, but also has a nozzle end (6) that supplies the adhesive dosage to the edgeboard (3), which conveniently will have to be manually located under said nozzle (6) by the operator.

[0014] The application of an adhesive dosage in each point of the edgeboard (3) can be made either automatically, for example depending on a signal received from a presence sensor of said edgeboard, or also manually, according to an operator's decision and with the help of a pedal (7) or any other similar element.

[0015] In this case, the operator will have to set the edgeboard (3) on the seat base (2) of the apparatus and move it longitudinally trough said seat base (2) after supplying a specific adhesive dosage.

[0016] This process can be speeded up with an embodiment of apparatus illustrated in Fig. 2, in which the support base (1') is longer, and in which the head (5') together with an arm (8) has a suitable length for placing as many nozzles (6') as adhesive points have been disposed on the edgeboard (3). The nozzles are spaced according to said points, so that in a single operation for applying adhesive, the edgeboard is ready and in conditions of being coupled to the stack block.

[0017] In this case, the edgeboard can be located on the support base (1) manually or automatically with the help of a conveyor belt (9) conveniently driven and controlled by stroke end sensors or similar control means.

[0018] Finally, the embodiment illustrated in Fig. 3 is particularly suitable for those cases in which there is little space availability. In this embodiment, the bank (1'') has also reduced dimensions, lower than that of the previous embodiments, and the head (5'') is considerably elongated in the vertical direction. Nozzles (6'') are also vertically aligned so that they are laterally adjusted to the edgeboard (3) to receive the respective adhesive dosages in a manual approximation operation. Thus, the operator takes the edgeboard (3) from the storage zone, and sets it on the nozzle (6''). The adhesive dosage is applied either automatically or by a pedal. Then, the operator can apply it to the stack block set on a pallet without releasing the edgeboard.

[0019] In any event, the cost of adhesiving edgeboards is considerably less expensive than that of conventional systems in which edgeboards are adhesived previously at manufacturing time and the adhesive is protected with a silicone paper sheet. The "in situ" adhesiving of edgeboards and subsequent application of them to the stack block are extremely fast and easy. This implies an important reduction of labor costs with the consequent economically beneficial outcome.

Claims

1. Apparatus for "in situ" adhesiving edgeboards used in the protection of palletized blocks, which is intended to adhesive said edgeboards immediately before applying them to the palletized blocks, **characterized by** comprising a support base (1, 1', 1'') capable of receiving the edgeboards (3) horizontally or vertically disposed, at least one nozzle (6) facing said edgeboards (3) that supplies an adhesive dosage existing in a deposit integrated within the apparatus head (5, 5', 5''), which is helped by corresponding dosing means, either automatically by means of presence sensors on the edgeboards (3), or manually with the help of a pedal (7) or any other similar element driven by an operator.

2. Apparatus for "in situ" adhesiving edgeboards used in the protection of palletized blocks according to claim 1, **characterized in that** the support base (1) comprises a seat base (2) for the edgeboards (3), and a column (4) for supporting the head (5) behind it and having a single nozzle (6) facing the seat base (2) over which is moved the edgeboard (3), which receives the adhesive dosage in points selected by the operator by means of a pedal (7).
3. Apparatus for "in situ" adhesiving edgeboards used in the protection of palletized blocks according to claim 1, **characterized in that** the support base (1') is considerably more elongated, with a length close to that of the edgeboard (3), the head (5') having a plurality of nozzles (6') that act simultaneously and are coincident in number and position with the adhesive application points provided in the edgeboard (3), and the nozzle (6') conveniently facing said edgeboard (3), either manually or automatically with the help of a conveyor belt (9).
4. Apparatus for "in situ" adhesiving edgeboards used in the protection of palletized blocks according to claim 1, **characterized by** comprising a support base (1") of reduced dimension and little height, from which a significantly elongated head (5 ") extends vertically, which length is closed to that of the edgeboards (3), a plurality of nozzles (6") being laterally arranged and vertically aligned and coincident in number and position with the adhesive application points provided in the edgeboard (3), so that said edgeboard (3) is manually brought face to face with the set of nozzles (6"), which spray the corresponding adhesive dosages by means of an automatic or manual operation.

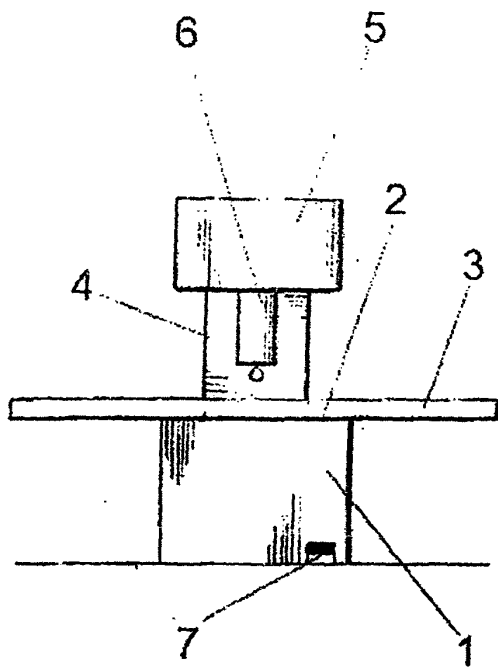


FIG. 1

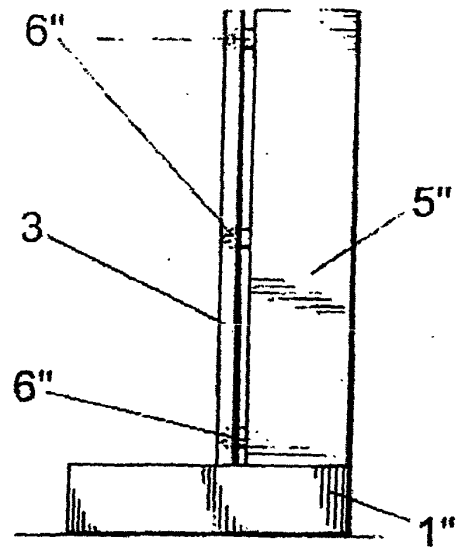


FIG. 3

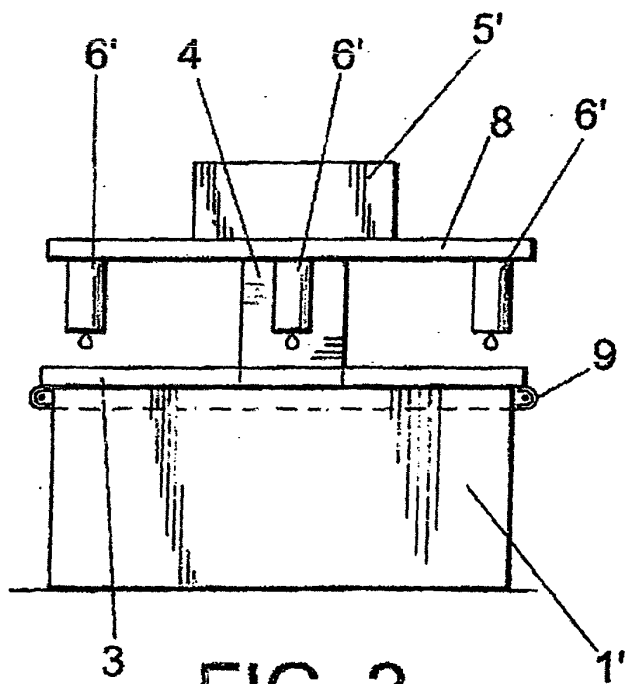


FIG. 2

INTERNATIONAL SEARCH REPORT

International application No.

PCT/ ES 2003/000660

A. CLASSIFICATION OF SUBJECT MATTER		
IPC 7 : B05C5/02, B65B13/18		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols)		
IPC 7: B05C, B65B		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)		
CIBEPAT, EPODOC, WPI, PAJ		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4033284 A (GROSS) 05.07.1977, the whole document	1-3
X	DE 4308650 A1 (LANDEN) 01.09.1994, column 2, line 66 - column 3, line 48; figures	1, 3
X	ES 2048590 T3 (QENICO AB.) 16.03.1994 column 2, line 58 - column 6, line 8; figures	1
X	FR 2747374 A1 (ITW GUNTHER, S.A.) 17.10.1997, page 1, line 1 - page 2, line 48; figures	1
A	ES 0419238 A (FABWERKE HOECHST AG VORMALS MEISTER LUCIUS & BRÜNING) 01.07.1976, page 7, line 2 - page 8, line 9; figures	4
☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.		
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Date of the actual completion of the international search		Date of mailing of the international search report
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INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

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