

1 566 144

- (21) Application No. 26140/77 (22) Filed 22 June 1977 (19)
 (31) Convention Application No. 7 619 494 (32) Filed 25 June 1976 in
 (33) France (FR)
 (44) Complete Specification published 30 April 1980
 (51) INT. CL.³ B65G 1/06
 (52) Index at acceptance
 B8W 1 B D



(54) INSTALLATION FOR HANDLING ON SUPPORTS PACKAGES OF
 VARIOUS TYPES

(71) I, JACQUES GABRIEL AUGUSTE THIBAUT, a French Citizen, of 35 rue Robert Legeay, Creteil, Val de Marne, France, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The present invention relates to an installation for making up on supports batches of packages of different types. The supports may be pallets or flats.

The invention relates particularly to an automatic installation for making up on supports, batches of packages in layers and the rational grouping of these batches for any subsequent utilisation of these batches according to demand.

According to the invention, there is provided an installation for making up on supports, batches of packages of different types in layers and grouping of the batches for any subsequent uses of the batches, comprising a store having a number of levels for receiving supports and layers of packages on the supports, a movable apparatus for distributing bare supports to desired levels in the installation, at least one supply of packages of different types, at least one apparatus for making up layers of packages, a movable apparatus for distributing layers of packages to a desired level, and an extractor for batches of packages in layers on supports.

In one embodiment, the installation comprises several receiving levels arranged vertically.

The installation comprises several receiving levels staggered with respect to one another.

An embodiment of the invention will now be described, by way of example, with reference to the accompanying drawings, in which:—

Figure 1 is a schematic side elevation of an embodiment of an installation according to the invention;

Figure 2 is a schematic plan view from above of the same installation;

Figure 3 is a diagrammatic side view and on a larger scale, showing several receiving levels stacked in a vertical plane;

Figures 4 and 5 are fragmentary views of the embodiment of Figure 3 on lines IV—IV and V—V of Figure 3, and

Figures 6 and 7 show, laterally and from above, movable apparatus for distributing layers of packages.

In the embodiment shown, an automatic installation for handling packages in layers according to the invention comprises a vertical box frame 20 having four receiving levels (1 to 4) of open-ended boxes 5 for receiving bare supports and, on these supports, layers of packages.

In a modification, not shown, the levels are stacked but staggered with respect to one another, for example in a generally inclined plane.

According to another modification, not shown, a single receiving level of sufficient size is provided in the same horizontal plane.

Advantageously, the distribution and grouping of the batches on a single level or on the set of levels in the boxes 5 is done according to a specifying method of location in space using a set of numbers and letters (I, II, III, IV, . . . etc., A, B, C, D, E, F, . . . etc.).

The partition walls between the open-ended locations of the frame 20 need not be present, and the locations at the levels defined by simple lines drawn on the levels.

In the embodiment shown, two conveyors 5 and 6 for package supply are inserted respectively between the level 1 and the level 2 and between the level 3 and the level 4.

Each conveyor is itself supplied with different packages by "n" packaging lines, not shown.

Each conveyor ends at an apparatus for making up layers from different packages, in the present instance a programmed preparation table 7 of the known kind comprising endless belts 7A and rollers 10, the endless belts 7A running between the rollers.

Each made-up layer is taken by a travelling hoist 8 for example the carriage 14 of

which has a retractable fork whose teeth 9 are capable of passing between the endless belts 7A of each preparation table.

This travelling hoist 8, once it has taken a layer, deposits it, either on a bare support arranged on one of the levels, or on a layer already deposited.

The carriage 14 is mounted on wheels 11 rolling on rails 12 and is also guided by rollers 13.

The carriage 14 bearing the fork 9 is capable of rolling on rails 15 provided on the hoist 8, in order to advance and retract the fork.

The levels 1 to 4 are supplied with bare supports (pallets) by a movable distributing apparatus 16, for example a fork apparatus. Preferably, this apparatus operates on the other side of the levels 1 to 4 with respect to the travelling hoist 8.

The movable distributing apparatus 16 may be of a transtocker of known type co-operating not only with levels 1 to 4, but also with a palleteer 17 of known type having boxes 17A, and, with an exit line 18 for the loaded pallets.

The batches of different packages arranged in layers on pallets can be extracted from the levels, for purposes other than storage. Depalletisation layer by layer can also be effected.

The package-handling installation according to the invention can include one or more recycling lines for packages which are not admitted on to the preparation tables for the layers of packages.

WHAT I CLAIM IS:—

1. An installation for making up on supports, batches of packages of different types in layers and grouping of the batches for any subsequent uses of the batches, comprising a store having a number of levels for receiving supports and layers of packages on the supports, a movable apparatus for distributing bare supports to desired levels

in the installation, at least one supply of packages of different types, at least one apparatus for making up layers of packages, a movable apparatus for distributing layers of packages to a desired level, and an extractor for batches of packages in layers on supports.

2. An installation according to Claim 1, wherein the apparatus for making up layers of packages is a programmed preparation table of known type.

3. An installation according to Claim 1 or Claim 2, wherein the same apparatus is operable to distribute bare supports and to extract batches of packages in layers on supports.

4. An installation according to any one of Claims 1 to 3, including means for recycling batches of unadmitted packages.

5. An installation according to any one of Claims 1 to 4, comprising several receiving levels arranged vertically.

6. An installation according to Claim 5, comprising several receiving levels staggered with respect to one another.

7. An installation according to Claim 5 or Claim 6, comprising a vertical box frame and open-ended boxes provided in said frame, the distribution and grouping of the batches on a single level or on a set of levels being done according to a space subdivision provided by said open-ended boxes.

8. An installation according to Claim 5 or Claim 6, wherein the positioning of batches of packages on the levels is defined by simple lines drawn on the levels.

9. An installation for making up on supports batches of packages of different types substantially as herein described with reference to the accompanying drawings.

PAGE, WHITE & FARRER,
Chartered Patent Agents,
27 Chancery Lane,
London, WC2A 1NT.
Agents for the Applicant.

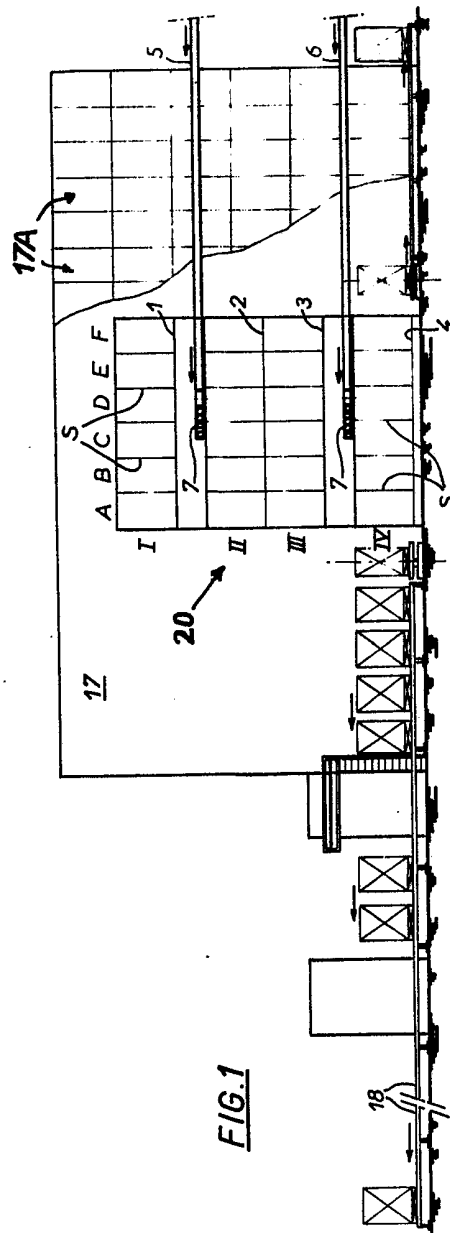


FIG. 1

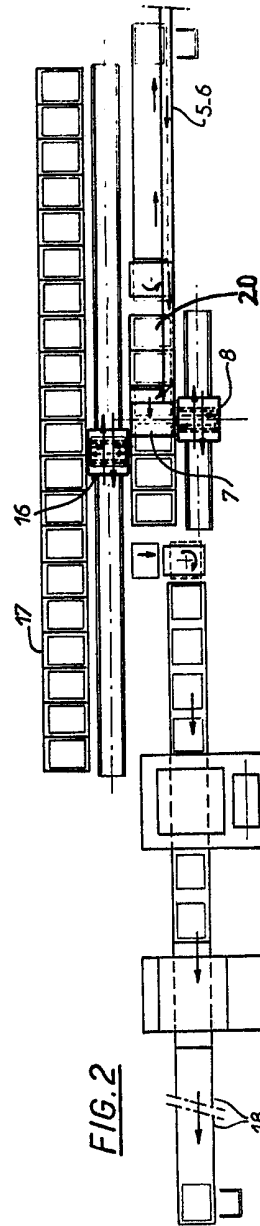


FIG. 2

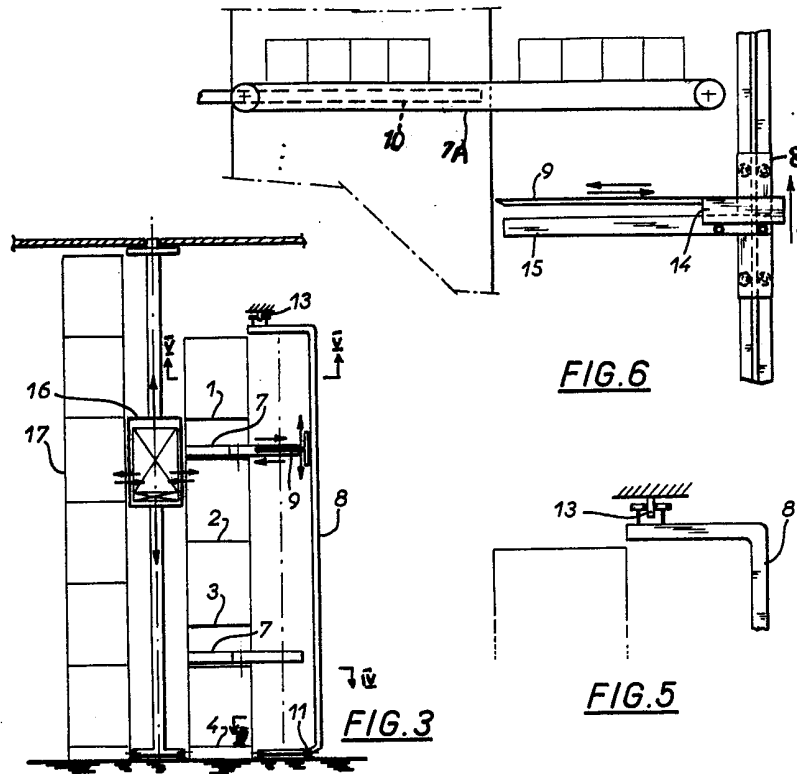


FIG. 6

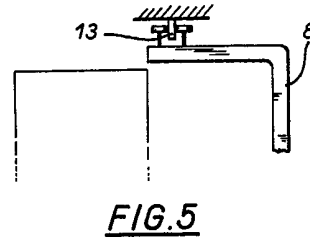


FIG. 5

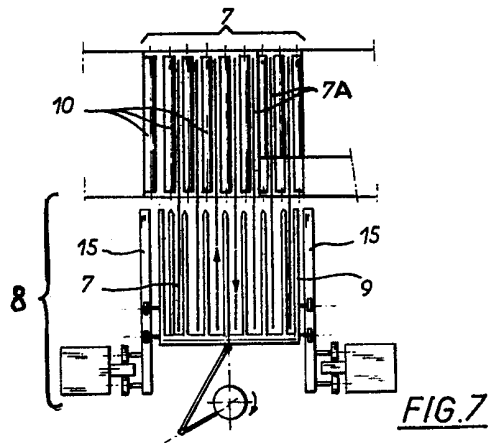


FIG. 7

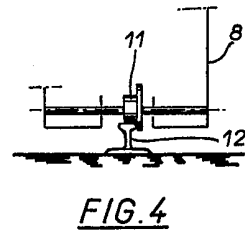


FIG. 4