

[54] **APPARATUS FOR INSERTION OF SWEET PARTS, IN PARTICULAR OF PRALINES, IN WRAPPING CASES**

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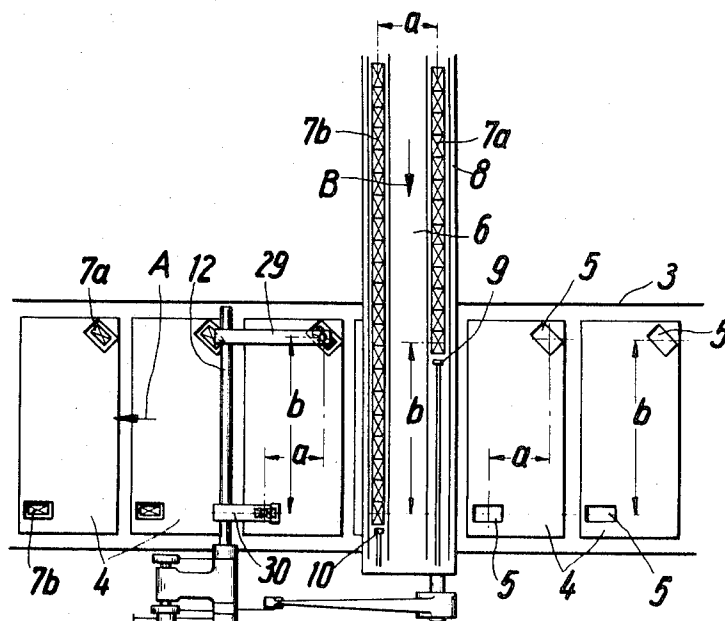
Primary Examiner—Robert L. Spruill

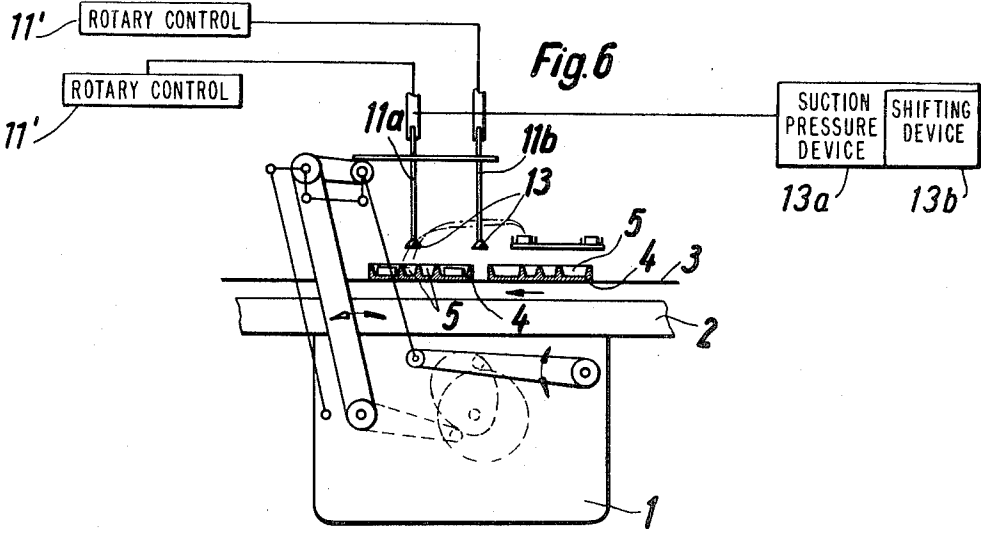
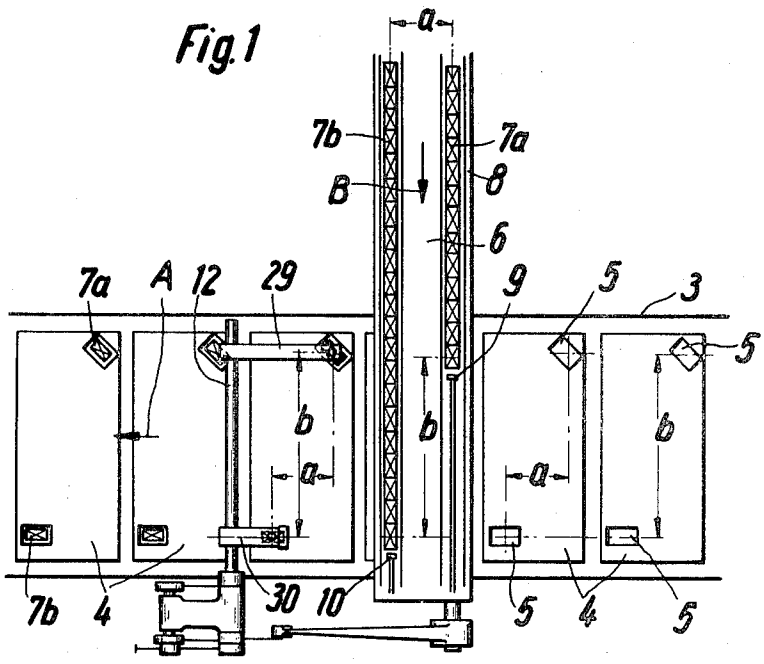
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[57] **ABSTRACT**

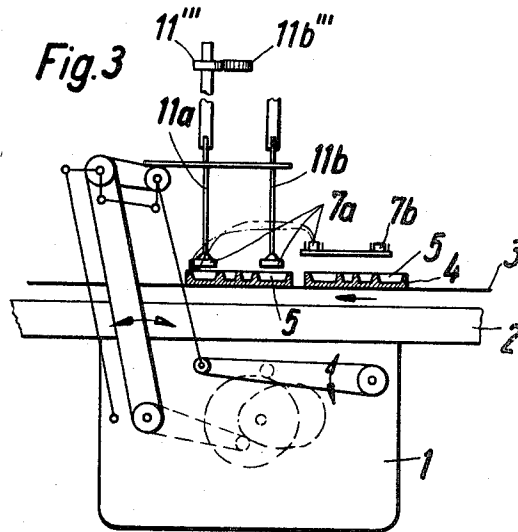
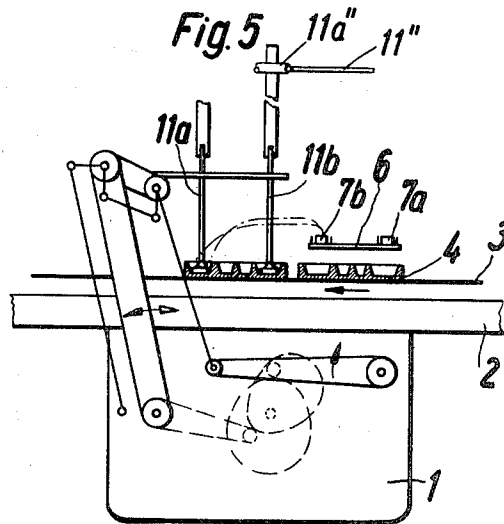
An apparatus for insertion of sweet parts, in particular of pralines in packing cases having a plurality of recesses corresponding to the shape of the parts, comprising feeding paths aligning the parts in one row and equipped with adjustable end abutments, and a transportation device for the open packing cases disposed crosswise at the end of the feeding path, and a transfer device provided at the end of the feeding paths, and comprising means for gripping the individual parts and inserting same into the packing cases and formed as lifting rams sitting on the swinging arms. For insertion of pralines, the feeding paths for the pralines are variable as to their relative distance and the end abutments of the individual paths are adjustable independently from each other to the praline distance. The lifting stamps are adjustable to the praline distances and are connected with a rotary drive transforming the pralines from the delivering position into the packing position.

11 Claims, 6 Drawing Figures





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APPARATUS FOR INSERTION OF SWEET PARTS, IN PARTICULAR OF PRALINES, IN WRAPPING CASES

The present invention relates to a method of and an apparatus for insertion of sweet parts, in particular of pralines, in wrapping cases.

It is known to pack different forms and types of pralines in a collection package, whereby for the reception of the individual praline pieces wrapping cases are provided, which have recesses corresponding with the individual pralines, so that the pralines are kept at a predetermined wrapping level. The insertion of the pralines into the wrapping cases results in appreciable difficulties, so that one is dependent to a great extent upon manual labor.

It is one object of the present invention to provide a method of and an apparatus for insertion of sweet parts, in particular of pralines, in wrapping cases, which is designed to avoid the drawbacks of the known devices.

It is another object of the present invention to provide a method of and an apparatus for insertion of sweet parts, in particular of pralines, in wrapping cases, wherein a fully automatic transfer of the pralines into the wrapping cases is brought about. This is achieved such, that the different praline types are fed, in endless rows aligned one behind each other, to a packing station, then lifted individually from the feeding row and lowered into the recesses of the wrapping cases corresponding with their shape, whereby during this transfer a rotation of the pralines takes place into the oblique wrapping position.

The apparatus for the performance of this method is characterized by a feeding path, groove, band or the like aligning the pralines in rows, and a transportation device for open wrapping containers, box cases, etc., whereby at the end of the praline feed a transfer device is provided, which receives the individual pralines from the feed, and if necessary, rotates the same into the oblique wrapping position and finally deposits them in the recesses provided therefor in the wrapping case.

Preferably, the transfer device is formed of lifting stamps suspended on swinging levers, which lifting stamps are connected with a control device which starts the lifting and lowering (lifting control). Simultaneously, for the lifting stamp a control device (rotary control) is also provided for rotating or swinging the lifting stamp during the praline transportation. Suitably, the reception and the transportation of the pralines takes place thereby by motion members, which are connected with a member producing pressure below atmospheric pressure and which retains the pralines during the transportation. The lifting stamps are adjustable at their carrier in any manner to the different required distances, which are caused by the position of the form recesses in the wrapping cases.

With these and other objects in view which will become apparent in the following detailed description, the present invention will be clearly understood in connection with the accompanying drawings, in which:

FIG. 1 is a top plan view of the apparatus, designed in accordance with the present invention; and

FIGS. 2 to 6 are schematic showings of the apparatus shown in FIG. 1.

Referring now to the drawings, and in particular to FIG. 1, a machine table 2 rests on a socket 1 formed as

a housing, over which machine table 2 a feeding path is guided for wrapping cases or inserts 4. This feeding path 3 can be a band, a chain or also a smooth table.

The inserts 4 have recesses 5 in the wrapping level of a corresponding division, which recesses 5 correspond with the praline shape as to its size and its configuration. The inserts 4 extend in the direction of the arrow A along the path 3. The movement can take place alternately or continuously.

A praline feed 6 (FIG. 1) is disposed above the guide path 3, and guide rails 8, are disposed parallel relative to each other but adjustable, so that the different praline types 7a and 7b are fed in an endless row one behind the other in the direction of the arrow B up to the transfer point. The feeding takes place against adjustable abutments 9 and 10, respectively.

In the embodiment shown by example, two rows of pralines 7a and 7b are provided, whereby simultaneously two pralines are removed and transferred into an insert or case 4. The distance b of the abutments 9 and 10 from each other and the distance a of the rows of praline rows are adjustable and correspond with the distances a and b, respectively, of the recesses in the wrapping insert 4.

At the crossing point between the feeding paths 3 and 6 the transfer device is provided. The latter comprises substantially lifting stamps 11a and 11b, which are retained for adjustment in a common carrier 12. These lifting stamps are equipped with suction devices 13 and are connected with a device producing pressure below atmospheric pressure 13a and a shifting device 13b.

The carrier 12 of the lifting stamps 11a and 11b sits on a supporting lever 14, which in turn is disposed at the end of a swinging lever 15. The latter sits on an axle 16 in the machine frame 1, inside of which cam discs 18 and 19 are mounted on a shaft 17. The cam disc 18 is provided for the start of the swinging movement of the lever 15 which engages with the lever arm 20 and the follower roller 21 the cam disc 18. In order to maintain the horizontal position of the carrier 12 for the lifting stamps 11a and 11b during the swinging movement of the lever 15, a compound course drive 22, 23, 24, 25 and 26 is provided, which cooperates with the carrying arm 14 and receives its drive from the cam disc 19 by means of the follower roller 28 sitting on the drive lever 27. It is possible by means of this lever arrangement, to move the suction devices 13 of the lifting stamps 11a and 11b in the curve path shown in point dotted lines.

It is important that the lifting stamps are adjustably mounted on the carrying arms 29 and 30, respectively, so that the possibility exists to set the lifting stamps according to FIG. 1 likewise to the distance b and a, respectively.

In the position of the parts according to FIG. 2, the suction devices 13 of the lifting stamps 11a and 11b have been set onto the pralines in the front, that means those which engage the abutment 9 and 10, respectively. At this moment the shifting device 13b of the apparatus producing pressure below atmospheric pressure 13a is switched on, so that the praline is sucked up and brought into the position shown in FIG. 3 during the now starting movement of the parts. During this movement the lifting stamps 11a and 11b are turned so far by means of a rotary control 11' (which can comprise a cable pull 11'' cooperating with a pulley 11a'' — as shown in FIG. 5 for example, or a toothed segment 11''' cooperating with a gear 11b''' — as shown

for example in FIG. 3). that the gripped praline is disposed directly above the wrapping insert 4 (FIG. 4) in the oblique position, which corresponds with the recess 5. Now the lifting control becomes effective, which control is formed by the cam disc 19 and the lever drive 27 and 26, that means the lifting stamps move into the position shown in FIG. 5. The pralines are thereby inserted into the recesses. The suction ceases, so that the suction devices 13 release the particular praline. Now the return movement of the pralines takes place up to the praline guidance. Thus, the position according to FIG. 6 is obtained.

As a matter of course, the distances *a* and *b* as well as the swinging range of the rotary movement of the lifting stamps are adjustable. By means of the joint feed 3 for the wrapping inserts 4, a plurality of praline feeds 6 and 8 are complementary transfer devices can be arranged, so that it is possible to supply in the above described manner, by the different transfer devices, all recesses in the wrapping inserts 4 with the corresponding separately advanced praline forms. If a wrapping insert 4 has, by example, eighteen recesses 5, suitably nine transfer stations and nine wrapping inserts are applied one behind the other for wrapping inserts. The individual units can be selectively switched on and off, so that it is possible, to orderly supply with pralines all types of wrapping inserts.

While we have disclosed one embodiment of the present invention, it is to be understood that this embodiment is given by example only and not in a limiting sense.

We claim:

1. An apparatus for insertion of sweet parts, in particular of pralines, in open packing cases having a plurality of recesses corresponding to the shape of said parts, comprising
 at least two feeding path means, each aligning and feeding said parts in a row, and each having an adjustable end abutment,
 a transportation means for said packing cases disposed crosswise to said feeding path means at the end of the latter,
 transfer means disposed at the end of said feeding path means and receiving said parts individually and inserting same into said packing cases,
 said transfer means comprising a lifting stamp for each feeding path means and swinging arms on which said lifting stamps are disposed,
 said at least two feeding path means being variable as to their distance relative to each other, corresponding to the distance of said recesses in said packing cases from each other in a first direction parallel to the direction of said transportation means, and for the insertion of said parts into the recesses of said packing cases,
 said end abutments of each of said at least two feeding path means being independently adjustable from each other, corresponding to the distance of said recesses in said packing cases from each other in a second direction crosswise to the direction of said transportation means, and for the insertion of said parts into the recesses of said packing cases,
 means for adjusting said lifting stamps relative to each other to correspond to the said first and second directions, respectively, of said recesses from

each other in said packing cases, and
 rotary drive means connected to said lifting stamps for moving the latter, transferring said parts from the end of said feeding path means, constituting a delivering position, into the recesses in said packing cases, constituting a packing position.
 2. The apparatus, as set forth in claim 1, wherein said lifting stamps are operatively connected with a first control means for starting their lifting and lowering, respectively.
 3. The apparatus, as set forth in claim 2, which includes means for turning said lifting stamps during the transfer of said pralines.
 4. The apparatus, as set forth in claim 3, wherein said turning means is adjustable to the position of said recesses provided in said packing cases adapted for insertion of individual of said pralines.
 5. The apparatus, as set forth in claim 3, wherein said turning means for said lifting stamps comprises a cable pull, the latter being operative during the transfer movement.
 6. The apparatus, as set forth in claim 3, wherein said turning means for said lifting stamps comprises a toothed segment, the latter being operative during the transfer movement.
 7. The apparatus, as set forth in claim 2, wherein said lifting stamps are disposed in a common carrier, and
 said common carrier is carried by said swinging arms, cam means for controlling said swinging arms, and a compound course drive means for retaining said common carrier in parallel positions.
 8. The apparatus, as set forth in claim 7, wherein said lifting stamps have suction members, means for producing pressure below atmospheric pressure operatively connected to said suction members, and which includes
 a shifting means operated during the operating cycle of said transfer means, and for maintaining said suction members in operation starting when said pralines are at the end of said feeding path means up to the time of their release into said recesses.
 9. The apparatus, as set forth in claim 1, wherein said at least two feeding path means for said pralines comprises adjacent channels, each of said channels feeding one row of said pralines, and
 said transfer means is equipped with a plurality of said lifting stamps rendered operative simultaneously and equal in number with that of the number of praline rows.
 10. The apparatus, as set forth in claim 9, wherein said feeding path means for said pralines and said transportation means for said packing cases are disposed in different planes disposed parallel relative to each other, and become proximate to an extent necessary for the transfer of said pralines in the transfer range of said transfer means.
 11. The apparatus, as set forth in claim 1, which includes
 a plurality of said two feeding path means and of said transfer means above said transportation means, the latter constituting a common feed for said packing cases.

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