(11) Application No. AU 2010201582 A1

(19) AUSTRALIAN PATENT OFFICE

(54) Title
Removal apparatus for food products

(51)[6] International Patent Classification(s)
A47F 13/00 (2006.01) 3BHAU A47F
A47F 3/026 (2006.01) 3/026
A47F 13/00 20060101ALI2010050
20060101AFI2010050 3BHAU

(21) Application No: 2010201582 (22) Application Date: 2010.04.20

(30) Priority Data

(31) Number	(32) Date	(33) Country
20 2009 006 328	2009.05.04	DE

(43) Publication Date : 2010.11.18
(43) Publication Journal Date : 2010.11.18

(71) Applicant(s)
Aldi Einkauf GmbH & Co. oHG

(72) Inventor(s)
Ochsenschlager, Robert; Ernst, Peter

(74) Agent/Attorney
Callinans, 1193 Toorak Road, Camberwell, VIC, 3124

20102015582 20 Apr 2010

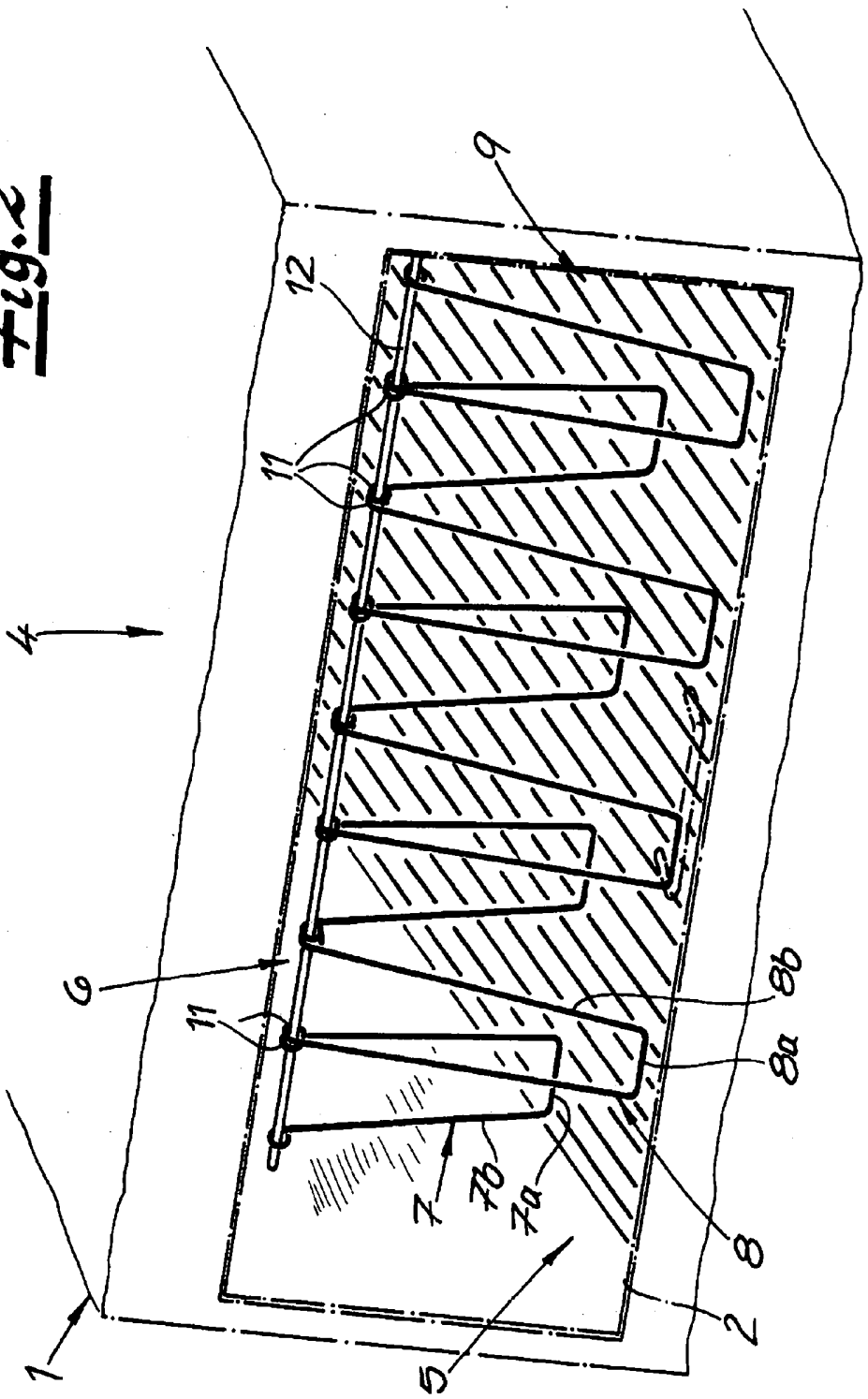
ABSTRACT

The invention relates to a removal apparatus for food products, in particular bread and/or baked goods. This is fitted with a storage chamber (4) and a removal compartment (5). The storage chamber (4) and the removal compartment (5) are separated from one another by a partition wall (6). According to the invention, the partition wall (6) for separating the food products is substantially composed of pivotable locking stirrups (7, 8) of different length.

To be published with Fig. 2

2010201582 20 Apr 2010

Fig.2



2010201582 20 Apr 2010

AUSTRALIA

Patents Act 1990

ORIGINAL

COMPLETE SPECIFICATION

INVENTION TITLE:

REMOVAL APPARATUS FOR FOOD PRODUCTS

The following statement is a full description of this invention, including the best method of performing it known to us:-

19/04/10,va 18610 covpag speci doc,1

2010201582 20 Apr 2010

REMOVAL APPARATUS FOR FOOD PRODUCTS

The invention relates to a removal apparatus for food products, in particular bread and/or baked goods, comprising a storage chamber and comprising a removal compartment which are separated from one another by a partition wall.

Removal apparatus for food products are known in the prior art, for which reference is made to EP 1 728 456 A1 merely as an example. This is concerned with a vending counter in which a storage container is filled with baked goods. The vending counter has a front opening for removing baked goods and a bearing surface for the baked goods.

In addition, a generic removal apparatus is known from the utility model specification DE 92 04 232 U1. This has a device for separate dispensing of goods in the region of its dispensing orifice. The apparatus consists of a lever, one arm of which projects over the orifice of the goods transporting chute and the other arm has at least one attachment which can punch through a chute base. When the lever is pivoted about the axis of the lever directed transversely and horizontally to the dispensing orifice, the said attachment engages in the interior of the chute. On the other hand, when the lever is not pivoted, the attachment is aligned flush with the chute base.

The prior art cannot be satisfactory in all aspects. For example, in the case of large-volume food products the problem arises that these cannot be moved at all and are therefore separated by the attachment engaging in the chute surface. In addition, the handling is complex since an operator must actuate the lever. Some functional disturbances also result from this, i.e. when the lever is jammed, for example, by transverse food products or can no longer be acted upon. This is where the invention begins.

The invention is based on the technical problem of further developing such a removal apparatus for food products in such a manner that easy operation is ensured and at the same time, it is possible to also handle large-volume food products.

In order to solve this technical formulation of the problem, the invention provides a removal apparatus for food products, in particular bread and/or baked goods, said removal apparatus including a storage chamber and a removal compartment which

2010201582 20 Apr 2010

are separated from one another by a partition wall, wherein the partition wall for separating the food products is substantially composed of pivotable locking stirrups of different length.

In this case, the design is generally made in such a manner that the locking stirrups forming the partition wall are disposed at the end of a bearing surface along which the food products move and mostly due to gravity. At the end of this movement and after passing the partition wall and separating, the food products reach a dispensing opening which is usually closed by a transparent flap. Here customers can then remove the articles in question.

The bearing surface usually forms the base of the storage chamber and partially the base of the removal compartment with the end dispensing opening. The locking stirrups extend almost perpendicularly compared to the bearing surface and are usually suspended on a connecting device.

In this context, it has proved successful if the locking stirrups are alternately configured as long locking stirrups and short locking stirrups. In this case, the respective long locking stirrup has a larger length compared to the short locking stirrup. The design is usually made in such a manner that the length of the long locking stirrup is about 10% to 30% greater than that of the short locking stirrup. In general, a length difference corresponding to the fact that the long locking stirrup is designed to be about 20% longer than the short locking stirrup is used here. This is naturally not compulsory and should only be understood as an example.

It has additionally proved successful if the respective locking stirrup has a rectangular to trapezoidal configuration when viewed from above. In this case, a trapezoidal design is particularly favourable since this ensures that the respective locking stirrup can be connected with its two trapezium legs to the connecting device already discussed and preferably in a pivotal manner.

Since the trapezium legs of the respective locking stirrup, starting from a horizontal leg, open in the direction of the connecting device, the individual articulated connections of the locking stirrups are preferably directly adjacent to one another. As a result, the respective locking stirrups retain their respective relative axial position compared to the connecting device supporting them and also compared to the bearing surface.

2010201582 20 Apr 2010

In fact, the connecting device advantageously comprises a connecting rod, which couples two opposite side walls of a housing to one another. The housing accommodates the entire removal apparatus and surrounds it. In addition, the housing has the dispensing opening with the transparent flap which has already been discussed. At the same time, the connecting device or connecting rod is connected to the opposite side walls of the housing in such a manner that it is disposed at a predefined height above the bearing surface.

The height of the connecting device or connecting rod above the bearing surface is dimensioned in such a manner that the locking stirrups having a trapezoidal configuration rest with their respective horizontal legs on the relevant bearing surface. If the locking stirrups each have different lengths or long locking stirrups and short locking stirrups each alternate, the horizontal legs have an offset with respect to one another in their abutting or resting position on the bearing surface when viewed from above.

This mutual offset of the locking stirrups or their respective horizontal legs abutting against the bearing surface ensures that the partition wall is as it were spread apart and describes an almost roof-shaped dividing compartment in the interior which is spanned or delimited by the locking stirrups. This is the case as long as no food product comes to abut against the partition wall or the locking stirrups.

The food products stored in the removal apparatus can easily be separated with the aid of this dividing compartment and specifically even when comprising large-volume food products such as bread, cake bars etc. This separation is further assisted by the horizontal legs of the locking stirrups being shorter that the distance of the relevant articulated connections. This can be attributed to the trapezoidal character of the locking stirrups with trapezium legs opening from the horizontal legs in the direction of the connecting device. In addition, as a result of this dimensioning rule, relatively large free spaces are available between the trapezium legs of adjacent locking stirrups via which the stored food products enter into the dividing compartment and can be removed from there.

It has proved successful if the locking stirrups are designed as one-piece wire stirrups. As a result, they can be manufactured particularly easily and cost-effectively. The locking stirrups usually have a retaining loop at the end of their

2010201582 20 Apr 2010

respective trapezium legs. The retaining loop is used for pivotal connection to the connecting device or the connecting rod, i.e. forms the articulated connection in each case.

The bearing surface is usually configured as a wire mesh surface. In addition, it has proved favourable if the bearing surface is arranged at an inclination in the direction of the partition wall in the housing. As a result, the food products are subjected to a downhill force in the direction of the partition wall and it is ensured that these reach the partition wall and from there the removal compartment. At the front this removal compartment is preferably closed with the transparent flap. This also applies to the housing which accommodates the removal device described in its interior.

Both the partition wall and the bearing surface each comprise structural units which can easily be removed for cleaning and re-inserted in the housing. As a result of the wire character of the bearing surface and the partition wall or the locking stirrups forming said wall, a customer or user can easily have a close look at the food products located in the storage chamber through the front transparent flap. This has a positive influence on purchasing behaviour. At the same time, this intricate design offers few points of attack for adhesion of dirt and can additionally be cleaned easily and free from problems. The essential advantages can be seen therein.

The invention is explained in detail hereinafter with reference to a drawing showing only one exemplary embodiment. In the figures:

Fig. 1 shows the removal apparatus according to the invention in a schematic side view and

Fig. 2 shows a perspective front view of the subject matter according to Fig. 1.

The figures show a removal apparatus for food products which is located entirely in a housing 1 which is rectangular and according to the exemplary embodiment, open at the top, which is naturally not compulsory. The housing 1 is provided with a front transparent flap 2 so that food products, in particular bread and/or baked goods, stored in the housing 1 can be inspected by the customer before purchase. In fact, the housing 1 is not used restrictedly for accommodating bread 3. The transparent flap 1

2010201582 20 Apr 2010

closes a dispensing opening via which the customers can remove the bread 3 from the housing 1 in the present example.

In its fundamental structure the removal apparatus is composed of a storage chamber 4, a removal compartment 5 and a partition wall 6 which separates the storage chamber 4 from the removal compartment 5. This ensures that when the front transparent flap 2 is open, a customer or user cannot reach into the interior of the housing 1 or does not reach the bread 3 located in the storage chamber 4.

According to the invention, the partition wall 6 has a special configuration. This is because for separating the food products or the bread 3 in the present example, the partition wall 6 is substantially composed of pivotable locking stirrups 7, 8 of different lengths which can be seen in particular in Fig. 2. By means of a comparative examination of Figs. 1 and 2, it can be seen that the locking stirrups 7, 8 are arranged at the end of a bearing surface 9 which traverses the storage chamber 4 and most of the removal compartment 5 and forms the respective base.

On examining Fig. 1, it is clear that the bearing surface 9 has an inclination with an angle of inclination α with respect to a horizontal and is arranged in the housing 1 at an inclination in the direction of the partition wall 6. In fact, the magnitude of the angle of inclination α is about 5° to 20°. This ensures that in the present example, the bread 3 resting thereon slides in the direction of the removal compartment 5 and must hereby pass the partition wall 6 to be separated.

As a result of the inclination of the bearing surface 9, the locking stirrups 7, 8 rest with their respective horizontal legs 7a, 8a on the bearing surface 9 and specifically are offset with respect to one another when viewed from above (cf. Fig. 2). As a result, the locking stirrups 7, 8 form a dividing compartment 10 which can be seen in particular in Fig. 1.

The locking stirrups 7, 8 are alternately designed as long locking stirrups 8 and short locking stirrups 7. In this case, the respective locking stirrup 7, 8 has a trapezoidal shape when viewed from above. The two trapezoidal legs 7b or 8b each adjoin the relevant horizontal legs 7a or 8a at the ends. In addition, the two trapezoidal legs 7b, 8b each go over into a retaining loop 11 at the ends. The relevant locking stirrup 7 or 8 is connected to a connecting device 12 with the aid of these two retaining loops 11 at the end of the two respective trapezoidal legs 7b or 8b.

2010201582 20 Apr 2010

In the present case, the connecting device 12 is configured as a connecting rod and couples two side walls of the housing 1 to one another. As a result of the retaining loops 11 being provided at the ends of the relevant trapezium legs 7b or 8b, a pivotal connection of the long locking stirrups 8 on the one hand and the short locking stirrups 7 on the other hand to the connecting device or connecting rod 12 is achieved.

At the same time, the design is made in such a manner that the inclination of the bearing surface 9, the length and configuration of the locking stirrups 7, 8 and ultimately their pivotal connection to the connecting rod 12 take place in such a manner that with a view to Fig. 1, the short locking stirrups 7 can be pivoted upwards and downwards in direction in relation to the bearing surface 9 whereas the long locking stirrups 8 predominantly allow a pivoting in the downwards direction with reference to the bearing surface 9. This is indicated in Fig. 1 by corresponding pivot arrows. This is naturally not an essential property.

In conjunction with the offset of the respective horizontal legs 7a or 8a of the locking stirrups 7, 8 in relation to the bearing surface 9, problem-free removal of the bread 3 is hereby ensured in the present example and at the same time its separation. It is also ensured that a user who has opened the front transparent flap 2 cannot reach right into the storage chamber 4. This is ensured primarily by the long locking stirrups 8 which prevent such manipulation for the most part.

With reference to Fig. 2 it can be seen that the respective retaining loops 11 of the locking stirrups 7, 8 in each case abut closely against one another, wherein the locking stirrups 7, 8 or retaining loops 11 arranged on the connecting rod 12 span almost the entire length of the connecting rod 12. In this way, a respective locking stirrup 7, 8 retains its relative axial position compared to the bearing surface 9 and also compared to the connecting rod 12. The locking stirrups 7, 8 are therefore fixed axially with respect to one another for the most part.

As a result of the trapezoidal character of the locking stirrups 7, 8, opening triangular slits are established between the respectively adjacent trapezium legs 7b, 8b of two locking stirrups 7, 8 in front view beginning at the connecting rod 12. These facilitate the separation and ensure that the bread 3 is transferred into the dividing

2010201582 20 Apr 2010

compartment 10 free from problems in the present example and can be removed from this.

Both the locking stirrups 7, 8 and also the bearing surface 9 are each made from wire. The locking stirrups 7, 8 preferably comprise one-piece wire stirrups. The bearing surface 9 is configured as a wire mesh surface 9. In conjunction with the front transparent flap 2, a user is thus afforded a view of bread 3 located in the storage chamber 4 which positively influences the purchasing behaviour. At the same time, this embodiment facilitates cleaning since the area for any adhesion of dirt is minimal. The essential advantages can be seen therein.

Throughout this specification and the claims which follow, unless the context requires otherwise, the word "comprise", and variations such as "comprises" and "comprising", will be understood to imply the inclusion of a stated integer or step or group of integers or steps but not the exclusion of any other integer or step or group of integers or steps.

The reference to any prior art in this specification is not, and should not be taken as, an acknowledgment or any form or suggestion that the prior art forms part of the common general knowledge in Australia.

2010201582 20 Apr 2010

The claims defining the invention are as follows:

1. A removal apparatus for food products, in particular bread and/or baked goods, said removal apparatus including a storage chamber and a removal compartment which are separated from one another by a partition wall, wherein the partition wall for separating the food products is substantially composed of pivotable locking stirrups of different length.

2. The removal apparatus according to claim 1, wherein the locking stirrups are alternately configured as long locking stirrups and short locking stirrups.

3. The removal apparatus according to claim 1 or 2, wherein the respective locking stirrup has a trapezoidal configuration and is pivotally connected with its two trapezium legs to a connecting device.

4. The removal apparatus according to claim 3, wherein the connecting device is configured as a connecting rod, which couples two opposite side walls of a housing to one another.

5. The removal apparatus according to any one of claims 1 to 4, wherein the locking stirrups rest with their respective horizontal legs on a bearing surface and in a manner offset with respect to one another when viewed from above as a result of their different lengths.

6. The removal apparatus according to any one of claims 1 to 5, wherein the locking stirrups are preferably designed as one-piece wire stirrups.

7. The removal apparatus according to any one of claims 1 to 6, wherein the locking stirrups have a retaining loop at the end of their respective trapezium legs for pivotal connection to the connecting device.

8. The removal apparatus according to any one of claims 1 to 7, wherein the bearing surface is configured as a wire mesh surface.

2010201582 20 Apr 2010

9. The removal apparatus according to any one of claims 1 to 8, wherein the bearing surface is arranged at an inclination in the direction of the partition wall in the housing.

10. The removal apparatus according to any one of claims 1 to 9, wherein the housing is fitted with a front transparent flap.

11. A removal apparatus substantially as hereinbefore described with reference to the accompanying drawings.

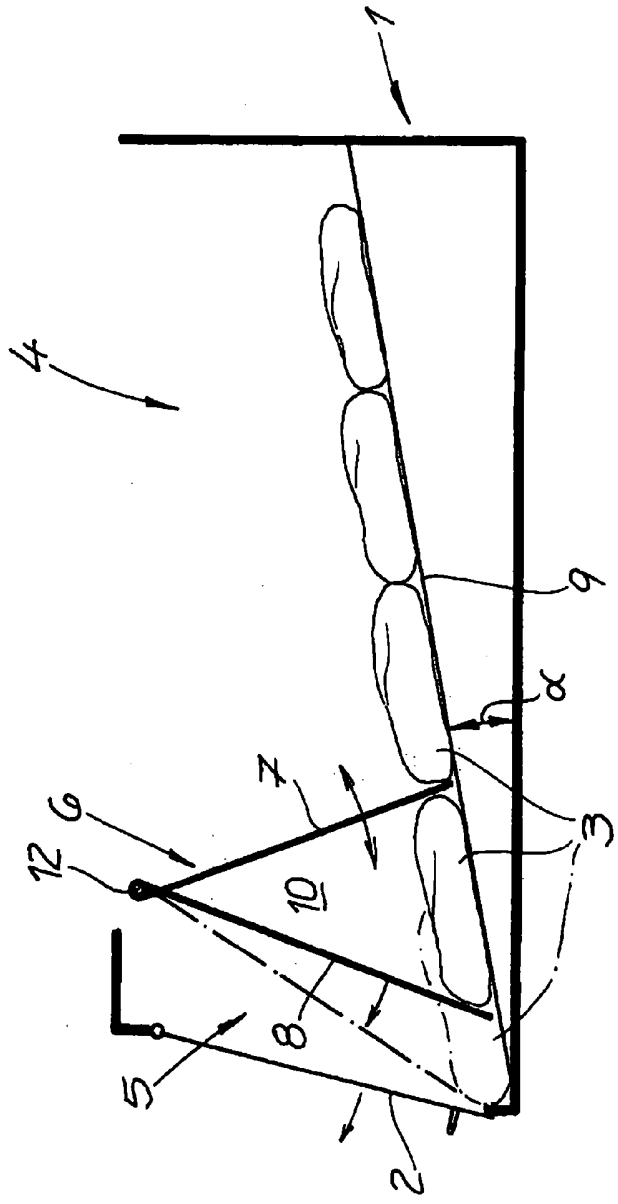


Fig.1

20102015 82 20 Apr 2010

Fig.2

