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☒ Description : paged ^{1-4, 7, 9-10} to paged
☒ Claim(s) : paged ¹¹ to paged
☒ Drawing(s) : paged ^{1/2} to paged ^{3/2}
☒ Abstract : paged ¹² to paged
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Method for Filling the Noodle

The present invention relates to a method for producing
 instant noodles, and more particularly, in the pre-step of
 frying, to a method for filling the noodles having a fixed
 length into a frying vessel (hereinafter referred to as "fry
 5 retainer").

Conventionally, instant noodles are formed into a line
 of noodles with a cutter after kneading the materials of
 flour, water, kansui or the like, manufacturing a noodle
 dough, and pressing the noodle dough. Then, after smothering
 10 the line of the noodles, the noodles are cut to a fixed
 length and packed into the fry retainer. Thereafter they are
 immersed in a frying pan (for fry treatment) containing the
 heated oil, and the noodles are then cooled.

In this case, when the noodles cut to the fixed length
 15 are going to be packed into the fry retainer, it is important
 to disentangle the noodles and to distribute them
 substantially uniformly for uniformity of frying and for
 acquiring a brick of high-quality fried noodles.

In other words, when the line of the noodles are packed
 20 into the fry retainer, if they are not sufficiently
 disentangled and their distribution is not sufficiently
 uniform, in the frying step the frying treatment will not be
 uniform and the frying of the centre portion of the brick of
 the noodles will be insufficient and be "under-done", on the
 25 other hand, the frying of the surface portion of the brick



will be excessive. Further, there are the problems that the line of the noodles will become maldistributed, the form of the products will not be preferable, and in addition thereto, when hot water is added at the time of cooking, a restoration
5 of the centre portion of the dense noodle brick will be obstructed and will be hard to eat.

To eliminate the problems aforementioned, conventionally, there are the method, as disclosed in the Japanese Patent Provisional Publication No. 56-5062, for
10 putting the noodles into the vessel by falling the noodles cut to have the fixed length through the shooter, spraying the pressurized air on the way of the falling, blowing it off to the horizontal direction of the L shaped shooter and falling to the vertical direction of the shooter at the end
15 of the opposite lateral wall, and the method, as disclosed in the Japanese Patent Provisional Publication No. 62-294053, for flowing and uniforming the noodles by putting the predetermined amounts of the noodles into the vessel, closing the upper opening of the vessel with movable lids, inserting
20 the nozzle mounted on the lids into the noodles for disentangling the noodles and shooting the air radially from the inserted nozzle. Further, there was the method of using a stick for uniformly filling the noodles into the vessel by vibrating the stick.

25 However, in the method for spraying the air or the method for flowing the noodles by vibrating the stick,



scattering of the noodles from the fry retainer was often caused, thereby, the operation of the automated production line may be inhibited, and in addition thereto, the weight of the brick of the noodles will not be uniform.

5 Further, in the method for vibrating the stick, the noodle is apt to be twisted and damaged, and it becomes hard to fry it uniformly in the frying step. And, in the conventional method, of spraying the air or vibrating the stick, there are problems of installing the apparatus having
10 the complicated and the large-scaled constructions.

In view of the problems in the prior art aforementioned, an object of the present invention is to provide a method for filling the noodles in the production method of the instant noodles whereby the distribution of the noodles is
15 substantially uniform, so that the frying of the noodles can be entirely and uniformly carried out in the frying of the next step without maldistribution from the surface of the brick of the noodles to the centre thereof, and the quality and the form of the noodles of the obtained fried brick of
20 the noodles are fine, and is easy to cook by adding the hot water.

According to the invention there is provided a method for filling noodles characterized in that noodles cut to a fixed length are put into a fry retainer and subjected to
25 pressurizing downwardly in that fry retainer.



By following the method of the present invention one can fill the noodles in the production method of the instant noodles without scattering the noodles from the fry retainer at the filling of the noodles, thereby, the operation of the automatized producing line is not inhibited and the weight of the brick of the noodles come to be uniform, in addition thereto, the noodles may not be rubbed and be damaged. Also when using the method of the present invention one can use apparatus having a simple structure and which does not require to be large-scale apparatus.

Preferably the noodles are pressed downwardly by a pressure-member which descends into the fry retainer at the time of the pressurizing.

Further, the outer dimension of the pressure-member is preferably smaller than an inner dimension of the fry retainer.

The invention will now be illustrated, by way of example, with reference to the accompanying drawings, in which:

Figure 1 is a schematic view showing a first embodiment of the filling method of the noodles of the present invention;

Figure 2 is a schematic view showing a second embodiment of the filling method of the noodles of the present invention;

Figure 3 is a vertical-sectional view of the pressure member used in the filling method of the present invention; and

Figure 4 is a schematic view showing the difference on the size between the fry retainer and the pressure member used in the filling method of the noodles of the present invention.

In the present invention, first of all, the noodles are prepared conventionally by kneading the materials like the flour, the water, the kansui or the like, preparing the noodle dough, pressurizing the noodle dough, and preparing the noodle with a cutting roll. Then, after steaming, the noodles are cut into a fixed length and weighed into predetermined amounts. Then, as shown in Figure 1a, they are dropped into a fry retainer 2 from a hopper 1 of a cutting-throwing device (not shown) and the situation as shown in Figure 1b is reached.

Then the noodles A put into the fry retainer 2 are uniformly packed into that fry retainer by a cylindrical pressure member 3 which is shown in Figure 3a descends downwardly and vertically as shown in Figure 1c.

Thereafter the noodles A held in the fry retainer 2 are fried, as shown in Figure 1d, by closing the upper opening of the fry retainer 2 with a lid 4, immersing it into an oil pan (not shown) containing heated oil and passing the oil

thereinto through a lot of holes (not shown) formed at the bottom of the fry retainer 2.

As mentioned above, by pressing the noodles A held in the fry retainer 2 with the pressure member 3 which descends downwardly, the noodles corresponding to the centre portion of the retainer, which would otherwise be apt to become half-cooked during the frying step, are pressurized and thereby, the noodles spread downwardly and on both sides, and a more uniform distribution is obtained. Further, by pressurizing the noodles A as shown in Figure 1d, a space 2a is formed between the upper portion of the noodles A held in the fry retainer 2 and the lid 4, and thereby, the possibility of the noodles spreading during frying is allowed.

Accordingly, the noodles A pressurized as above and held in the fry retainer 2 come to have a substantially uniform distribution noodles in both upright and horizontal directions. Therefore the frying of the noodles can be entirely and uniformly effected without maldistribution from the surface of the brick of the noodles to the centre thereof, and so noodles of fine quality and form are obtained.

As shown in Figure 4, since the noodles are to flow uniformly downwardly and on the both sides in the fry retainer 2 to form the space C, it is preferable to make a



difference between the inner dimension of the fry retainer 2 and the outer dimension of the pressure member 3.

Further, an example of a suitable mechanism for moving the said pressure member 3 vertically is a piston-cylinder mechanism.

Shown in Figure 2 is a second example of a filling method for the noodles of the present invention. It is a method substantially similar to that of the first example aforementioned and shown in Figure 1, and the difference is in the form of the pressure member 3. Thus a edge 3a of the pressure member 3 is part-spherical. Thereby, during the pressurizing of the noodles A held in the fry retainer 2, a densed centre portion of the noodles are pressed out on the both sides along part-spherical edge 3a and become packed uniformly in the fry retainer.

Examples showing the invention as put into practice and compared with prior methods of producing noodles will now be provided.

After putting the noodles (#24 square (1.25mm pitch, 15cm)) and manufactured by the ordinary method into the fry retainer, each frying step was conducted in a first method 1 according to Figure 1 with a cylindrical pressure member 3 of ϕ 45.0mmX150.0mm, and in a second method 2 according to Figure 2 with a pressure member 3 formed with a radium 18mm

at the bottom margin of ϕ 45mm, (the space between the upper opening of the retainer and the member is 9.25mm).

After two seconds of the pressing (required time for pressurizing 20mm downwardly from the upper opening of the retainer), 20mm of the press stroke (the distance between the upper opening of the retainer and the top surface of the noodles), the noodles were fried to 2 minutes at 155°C.

The results as compared with a conventional method without use of the pressure member are shown in the following Table:

Conventional

Method Method (1) Method (2)

Press Stroke (mm)	---	20	20
Press Time (sec.)	---	2	2
Number of Samples	24	24	24
Number of Half-Fried Samples	9	0	0
Number of Uneven-Fried Portions	6	2	0
Number of Normal Products	9	22	24

As is apparent from the results shown in the Table, in comparison with the conventional method, it is clear that to fry the noodles pressurized and packed with the pressure member 3 into the retainer 2 by the method of the present invention is better in acquiring the uniformly packed



situations and conducting the frying treatment uniformly. Further, by using the pressure member as shown in Figure 3b, an improved effect is derived from the form of the pressure member being entirely spherical or, at least, having a lower margin thereof spherical.

According to the filling method of the present invention, the noodles held in the fry retainer are vertically and downwardly pressurized with the pressure member and the centre portion thereof, otherwise being apt to be half-fried at the time of frying step, is pressurized and thereby the distribution of the noodles are spread and comes to be uniform on both sides and vertically. Further, by pressurizing the noodles, a space between the upper portion of the noodles held in the fry retainer and the lid is formed, and the noodles can spread into that space during frying.

Accordingly, the distribution of the noodles pressurized as mentioned above and held in the fry retainer comes to be uniform on the both sides and the vertical direction, thereby, the frying of the noodles are entirely and uniformly carried out in the frying of the next step without maldistribution from the surface of the brick of the noodles to the centre thereof, and noodles of fine quality and form are obtained.

Further, in the filling method of the present



invention wherein the noodles are pressurized with the pressure member having, at least, a margin thereof which is part spherical, when the noodles held in the fry retainer was pressurized, the close centre portion of the noodles are squeezed out along with the spherical edge, and thereby a more uniform filling becomes possible.

Consequently, the instant noodles produced by the method of the present invention will restore easily when cooked by adding the hot water at the time of eating.

Further, according to the present invention, scatter of the noodles from the fry retainer is not caused, thereby, the operation of the automated production line will not be inhibited. In addition thereto, the weight of the brick of the noodles becomes uniform. Therefore it can provide the filling method in the producing method of the instant noodles without rubbing and damaging the noodles at the time of filling.

CLAIMS:

1. A method for filling noodles characterized in that noodles cut to a fixed length are put into a fry retainer and subjected to pressurizing downwardly in that fry retainer.
- 5 2. A method as claimed in Claim 1 in which the noodles are pressurized downwardly by a pressure member which descends into the fry retainer at the time of pressurizing.
3. A method as claimed in Claim 2 in which an outer
10 dimension of the pressure member is smaller than an inner dimension of the fry retainer.
4. A method as claimed in Claim 2 or Claim 3 in which a bottom edge of the pressure member is flat.
5. A method as claimed in Claim 2 or Claim 3 in which a bottom margin of the pressure member is spherical.

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