A method for making twisted bars of pastry which involves cutting a strip of pastry into successive ribbons, advancing the ribbon to a twisting device by belts subjected to a first jerked advance in which a second ribbon is cut from the strip, the first ribbon is turned over by a twisting device while the second ribbon remains immobile and then the ribbon is advanced to a second jerk by belts to send the first ribbon into a twist flattening means, a third ribbon may be cut off in continuing steps and the pieces are subsequently fed into a cooking device.

4 Claims, 5 Drawing Figures
1

METHOD OF MANUFACTURING TWISTED PASTRY ARTICLES

The present invention relates to the manufacture of twisted articles and to articles thus obtained in the form of bars comprising one or more twisted parts spaced out along their length.

The present invention relates more particularly to a method and a device for the manufacture of articles of pastry ware or confectionery obtained on the basis of a pastry-like material in the form of small bars comprising at least one twisted part over their length. Even more particularly the present invention relates to a method and a device for operating same, facilitating the obtaining of small bars or sticks more particularly of folded-over pastry which comprises a twist which is clearly in their central part and which, having passed into a cooking device, constitutes cakes sold under the name of "Tortillons".

Such cakes made of folded pastry are at the moment obtained on the basis of a strip of folded pastry with semolina sugar powdered thereon, cut into transverse ribbons of small size, each ribbon being cut off in turn into short sections or pieces, each piece being twisted on to itself manually before being cooled. It will be agreed that this operation of manual twisting requires a large number of operatives if it is desired to obtain a large rate of flow of these cakes, and the cost of their employment has a pronounced effect on the economy of such manufacture.

It is thus one of the main objects of the present invention to provide a method for manufacturing such articles, notably of pastry ware or confectionery, twisted over on themselves in at least one spot along their length and constituted on the basis of a pastry-like material, the stages of this method all being executed mechanically.

Another object of the present invention is to provide a machine for executing such a method in mechanical manner, so conceived as to offer not a single member capable of retaining the pastry-like materials, in other words, they cannot be soiled by contact with the latter or with any products coating them and making it possible to admit at the input the pastry-like material in the form of a strip of consistent size which the twisted articles will be obtained in a number of rows.

Another object of the present invention is to facilitate the obtaining of pastry articles, of determined length and width, all identical and each comprising at one or more identical spots a part where they have been twisted over on to themselves, these twists being fixed by means of a slight crushing or flattening to the thickness of the article, in other words to the thickness of the strip of pastry which is supplied to the machine.

Yet another object of the present invention is to provide more specifically at the input to a cooking device small bars of folded-over pastry with a coating of sugar, each comprising a twist in its central part which has been flattened to its thickness so that the results obtained at the output of the cooking machine after baking is small cakes which are clearly of the same shape and size and are known as Tortillons.

According to the invention a method of this type for the manufacture of articles in the form of small twisted bars, notably of pastry-like material, comprises:

1. The transverse cutting of a strip of pastry-like material into successive ribbons;

2. The gripping of each ribbon transversely thereto at several points spaced along its length, the extreme gripped portions corresponding to the two terminal parts of the ribbon;

3. Making a squeezed point turn back completely on itself on two consecutive points, the extreme points which have been turned over corresponding to the second point starting from the extremities of the ribbon, one twisted part being formed between each pair of gripped points;

4. In simultaneously flattening all the twisted parts so that they revert to the thickness of the squeezed points and in order that they are fixed so that they do not become untwisted with each ribbon is liberated from the squeezing action after the application of these four stages of the method, each ribbon then being in the form of a small bar with flat parts separated by means of twisted parts into specific points along its length.

More specifically and according to the invention the squeezed points are situated equidistant from each other, the end parts of the ribbons constituting the extreme squeezed points and all these points forming flat parts situated in one and the same plane. This process also comprises a stage consisting in the cutting of each twisted ribbon clearly in the centre of each flat part between two consecutive twisted parts, the extreme flat parts themselves being cut at a corresponding distance from the adjacent twisted parts, so as to obtain strips of ribbon which are clearly of the same length and comprise a central twisted part.

Moreover and according to the invention this method is operated in a machine comprising:

1. A belt for supplying the strip of pastry-like material and a discharge belt for removal of the twisted article situated at a distance from the supply belt but in axial prolongation thereof;

2. An apparatus for cutting the strip of pastry-like material into successive transverse ribbons situated adjacent to the discharge extremity of the supply belt;

3. A plane bed of upper belts and a plane bed of lower belts situated between the supply and the discharge belts and in axial prolongation thereof, worked so as to supply between them a passage which is free of all members, connecting the belts in a plane which is clearly horizontal and in which each ribbon is entrained in the direction of the outlet belt while being slightly squeezed between the upper belts and the lower belts which face each other without being able to deviate transversely;

4. Twisting device worked so as to be able to turn vertically in the upper and lower belt beds and situated so as to be perpendicular of the parts of the ribbons which are to be squeezed and also turned, each device comprising an upper belt and a lower belt facing each other and maintaining between them the same passage as exists between the other belts;

5. Devices for flattening the twisted sections, each being situated in the axis of a twisted part at a distance from the output of the twisting devices and in front of the discharge belt.

This machine further comprises, above the discharge belt, a device for cutting twisted ribbons into pieces comprising a twist in their central part.
More particularly, each belt of the upper plane bed is perpendicular of a corresponding belt of the lower plane bed, the upper belt being distributed basically symmetrically in respect of the lower belt vis-a-vis the horizontal axis of the freed passage between them connecting the supply and discharge belts, each bed comprising, perpendicular of a part of the ribbon which is to be squeezed, but not twisted, a continuous belt connecting the discharge end of the supply belt and the reception end of the discharge belt, and perpendicular of a part which is to be squeezed and made to turn upon itself, between these two same belt ends, an assembly of three belts comprising an input belt to the corresponding twisting device followed in its prolongation by the belt of this twisting device which is itself followed in its prolongation by a discharge belt supplying the discharge belt, this arrangement of the belts being such that each upper continuous belt and its corresponding lower belt are in the same vertical plane perpendicular to part of the non-twisted ribbons and in that each upper assembly of three successive belts and the lower assembly which corresponds thereto are in the same vertical plane, perpendicular in respect of a part of the ribbon which is not twisted but is to be made to turn over on itself completely, these vertical planes being situated on both sides of a section of twisted ribbon.

Each twisting device is comprised of two caged half crowns each of which is supported by a stationary cheek situated outside the free passage between the belts, these half crowns being separated from each other so as to constitute a part of this freed passage and each supporting a belt, these two belts themselves being arranged so as to be perpendicular in respect of each other and control between them the same freed passage, each belt being controlled in translation by a roller, the rotation of which is controlled by a screw-driver device and each half crown being in engagement with two control pinions, these pinions being four in number per device and being distributed angularly in the periphery of the half crowns.

Each twist-flattening device is comprised of an upper belt perpendicular to a lower belt, these being disposed in a vertical plane crossing a twisted part of the ribbon, in other words between two vertical planes formed by the belts situated to the right of non-twisted parts of the ribbon.

The device for cutting twisted ribbons is comprised of upper belts at the belt output keeping between them and the latter the same freed passage, and are arranged in pairs with between these two crowns, a ribbon cutting disc, each pair of belts being situated in the axial prolongation of each belt or assembly of three belts of the upper bed of same.

The apparatus for cutting the strip of pastry-like material into transverse ribbons is comprised of a transverse blade adapted to move vertically and cooperating with a stationary transverse anvil which itself forms a counter blade situated in the vicinity of the discharge end of the supply belt, this blade being controlled in reciprocal motion by an eccentric controlling the stepped advance of this supply belt, this advance having a value corresponding to the width of a cut ribbon.

It should be noted that in order to understand the functioning of a machine of this type, when applying the method according to the invention the translation of the upper and lower bed belts is achieved by advancing by means of jerks, which are separated from each other by a period of stopping during which the twisting devices are simultaneously made to rotate over a complete turn, each advance jerk of the belts, including those of the twisting devices which are then immobilised with their central passage in the prolongation of the freed passage of the machine, having a value clearly greater than the overall gauge radius of a twisting device, being calculated in such a way that a ribbon is always stopped in the axis of the twisting members with a view to the successive rotation of the latter, and being controlled by the angular rotation of a first Maltese-cross, the rotation of the twisting members being controlled by the angular rotation of a second Maltese-cross, the rotation of the twisting members being controlled by the angular rotation of a second Maltese-cross, this being mounted so as to remain stationary when the first cross is in rotation, this latter conversely remaining stationary when the second cross is in rotation, these two crossovers being successively set in rotation by a block wheel set in continuous rotation by the motor source of the machine.

Thus the supply belt of the strip of pastry-like material and the latter, advances over a length corresponding to the width of a transverse ribbon which is cut off from the strip by the full face in the blade with a view to advancing the belt and disposed on the immobile belt of the lower bed, these movements being controlled by the eccentrics which are set in continuous rotation by the motor source of the machine.

The angular rotation of the first Maltese-cross preferably of the value of a quarter revolution, controls the simultaneous translation of the belts of the upper bed and of the lower bed, including those of the twisting devices and those of the twist-flattening devices, over a length which is clearly greater than the overall rotation gauge radius of a twisting device, and in that the angular rotation of the second Maltese-cross, preferably of the value of a ¼ revolution, controls, exclusively by means of four pinions engaging on the caged half crowns of each of the twisting members, the simultaneous rotation over a complete turn of the latter.

On the other hand, the output belt, and the discs and crowns of the cutting device are respectively set in continuous translation and rotation by means of direct reduction transmission from the motor source of the machine.

Other aims and characteristics of the present invention will emerge from the following specification of a non-limitative embodiment of a machine for operating the method of this invention shown diagrammatically in the attached drawings, in which:

FIG. 1a is a section view taken along the line I—I of FIG. 2 showing the disposition of the belt in the longitudinal axis of one of the twisting devices, this view also showing in diagrammatic form the control of this twisting device by means of pinions and chains;

FIG. 1b is a section view taken along the line II—II of FIG. 2 showing the disposition of the belts in the axis of an interval between two twisting devices, this view also showing in diagrammatic form the control of a twisting device by means of pinions and chains so as to explain more clearly the situation of each of these members;

FIG. 1c is a diagrammatic sectional view of a twisting device;

FIG. 2 is a plan view of the control mechanism of the machine, supply and discharge belts, only the belts of
the lower beds being shown to aid comprehension, bearing in mind that the corresponding belts of the upper bed are distributed in the same manner and symmetrically in respect of the plane X—X of FIGS. 1a to 1c.

FIG. 3 is an elevation view of the control mechanism of the machine taken along line III—III of FIG. 2.

As will be seen by reference to FIGS. 1a, 1b and 2, the machine which is shown comprises a supply belt C11 of a sheet or strip of pastry-like material B and a discharge belt C12 for removal of the twisted articles situated at a distance from the supply belt but in prolongation thereof, the intervening space being occupied by a plane bed of upper belts and a plane bed of lower belts.

These upper belts C1, C3, C5 and lower belts C9, C2, C4, C6 are so arranged as to form between their plane beds a longitudinal passage along the plane X—X, freed of any member, connecting belts C11 and C12 in a clearly horizontal plane in which each ribbon r cut off transversely from strip B, is entrained while being slightly squeezed between the upper belts and lower belts facing each other, such as C1 and C2, C5 and C6, C3 and C4, without being able to deviate transversely. Twisting devices are provided, carrying belts C1 and C2, and are able to turn vertically; they lie between two pairs of belts C3, C4. These devices will be described in more detail later with reference to FIG. 1c.

Twist-flattening devices are also provided, situated between the output of the twisting devices and the input of the discharge belts C12, each flattening device being comprised of a pair of belts C7 and C8 placed in the gap between two pairs of belts C3, C4, and C5, C6.

It should be pointed out that each upper belt is directly above the lower belt corresponding thereto, in other words the upper belts are distributed so as to be symmetrical to the lower belts vis-a-vis the plane X—X of the free passage. The distribution of the lower belts is very clearly seen in FIG. 2, this figure also showing the gaps between the belts where the twisted parts v of the strips r are to be formed, said parts to be flattened between belts C7, C8, of the flattening devices. Only lower belts C9 do not have corresponding upper belts; they are provided only to support the corresponding parts of strip r before they enter between belts C1, C2 of the twisting devices.

So that the arrangement of all these belts may be more clearly understood, it should however be noted that each bed comprises, at the position of a part of this strip which is to be squeezed but not twisted, a belt such as C3 or C4 connecting terminal discharge end of the supply belt C11 to the reception end of the discharge belt C12. On the other hand, each bed comprises, at the position of a part of the strip which is to be squeezed and made to turn upon itself in a complete revolution by means of a twisting device in order to form twists on both sides of it, an assembly of belts comprising an input belt C9 to the corresponding twisting device, followed by the belt of this twisting device C1 or C2 which is itself followed by a belt C5 or C6 supplying material to the discharge belt C12.

This machine also comprises an assembly for cutting strips B into transverse ribbons r, situated in the vicinity of the discharge end of the supply belt C11 and in front of the input of belts C4 and C9. This cutting assembly comprises a transverse blade 30 actuated vertically in reciprocal motion by means of eccentric E and cooperating with an anvil 30' forming a counter blade; this eccentric E also controls the stepped advance of the supply belts C11 by means of a rod 28.

A device for cutting twisted ribbon is also provided above the discharge belt C12 and comprises belts C10 arranged so as to maintain vis-a-vis this belt the same passage as that between the belt bed distributed in twos in the axial prolongation of the upper belt C3 with, between them, a cutting disc D which is thus situated equidistant from the two twisted parts v of the ribbon. It should however be pointed out that at the two lateral extremities of this device only one belt C10 is provided, flanked on the outside by a disc D intended to cut the corresponding end of each ribbon r.

There follows a more explicit description of a twisting device with reference to FIG. 1c. This twisting device comprises two toothed half rows R4, separated from each other in order to constitute a free passage in the plane X—X. Each half crown is supported by lateral cheek (not shown), these cheeks similarly being separated in order to maintain the free passage. Each half crown is meshed with two pinions P10, placed adjacent the periphery of the half crown, and supports a lateral belt C1 or C2. These belts are placed symmetrically in respect of each other, vis-a-vis the plane X—X, to maintain a free passage, as has been mentioned above. Each belt passes over a drive roller 20 and idle return rollers 20, 21, 22, 23 the roller 21 acting as a braking or tensioning member. Each drive roller I comprises on its extremity on the belt side a split projection 31 designed so as to be engaged in the position shown in FIG. 1c by means of a member forming a screwdriver associated with each pinion P20 (see FIGS. 1a and 1b).

It will be understood that, as mentioned above, each twisting device may be set in rotation by a pinion P10 and that when it is immobilised in the position shown in FIG. 1c its belts C1 and C2 may be translated under the action of the rotation of the rotors I entrained by their respective split projection subject to the action of rotation of the corresponding screwdriver member.

To this end, the functioning of this machine will be more clearly understood with the help of the following description of its control mechanism which relates to the Figures. In this control mechanism:

a. Toothed wheel R (FIGS. 2 and 3) is the control wheel continuously driven by a motor chain A and splined on a shaft T, which itself supports a pinion P1 and a block wheel R1 which are splined on it. These two members therefore turn continuously. The wheel R1 has four blocks t at 90° (two diametrically opposed on one side, and two diametrically opposed on the other side).

b. The pinion P1 drives a toothed wheel R2 by means of chain B passing over a pinion P2, which is idle on a shaft 7 but integral with a wheel R5 identical to a wheel R6 and over tensioning pinion P3. This wheel R2 is splined on shaft 6 on which are splined a pinion P4 and a roller S for entraining the discharge belt C12. The pinion P4, by means of a chain C, entrains a pinion P5 splined on a shaft 4 for entraining the discs D and a pinion P6 splined on a shaft 5 for entraining rollers G1 of the belts C10. The wheel R5 entrains a pinion P14 by means of a chain G passing over a braking or tensioning pinion P13.

It will be understood that, as a result, when the motor chain A is driven, it controls the continuous translation of the belts C10 and C12, the continuous rotation of
the discs D and likewise that of shaft 27 of the eccentrics controlling, by virtue of the staggering of the latter, the control of blade 30 and the advance of belt C11 in turn. The descent of blade 30 needs to be controlled in such a way that it cuts a ribbon of pastry-like material during the stopping of the lower belt bed.

e. The block wheel R1 entrains in alternation two Maltese-crosses CM1 and CM2 (CM1 being immobilised while CM2 executes a \( \frac{1}{4} \) revolution and conversely CM2 being immobilised while CM1 executes a \( \frac{1}{4} \) revolution).

The cross CM1 is idle on the shaft CM and supports in integral manner a toothed wheel R3 while the cross CM2 is splined on this shaft CM and is flanked by two pinions P7 and P8 likewise wedged on this shaft.

d. Wheel R3 engages four satellite pinions in the periphery of the half crowns R4 wedged on respective shafts 2. On each of these shafts a pinion P10 is wedged for each twisting device enmeshed with crown R4 of the latter (in other words for each crown R4 of a twisting mechanism there are four control satellite pinions).

It will be understood that as a result cross CM1 controls only the rotation of the twisting devices of the machine.

e. Pinion P7 turning integrally in respect of cross CM2 entrains, by means of chains E passing over idle pinion P11 and bracketing pinion P12, the wheel R5 wedged on shaft 7. This shaft 7 also carries wedged on its control wheel G2 of belts C2, C5, C7, and cogged wheel R5 on which enmeshes chain G, stretched by bracing pinion P13 and controlling eccentric E by means of pinion P14, wedged on shaft 27. This eccentric E controls via the rod 28, the stepped advance of input belt C11, and, by means of tie-rods 29, the cutting devices 30.

f. Pinions P8 turning integrally in respect of cross CM2 entrains, via chain D, toothed wheel R6 splined on shaft 8, toothed wheel R7 splined on shaft 9, pinion P15 splined on shaft 31, this chain being braced by pinion P16. Shaft 8 supports, splined on it the roller G3 controlling belts C4, C6, C8. Shaft 9 supports, splined on it, the roller G4 controlling belts C9.

g. Shaft 31 supports, wedged on it, toothed wheel R8 for entraining chain F which meshes on pinion P17 wedged on the upper shaft 1', passes over bracing pinion P18, then engages on pinion P19 wedged on the lower shaft 1' and returns to cogged wheel R8.

h. Upper and lower shafts 1' also support, respectively splined on them, several upper pinions P17', and lower pinions P19'. Each upper pinion P17' entrains, by means of a chain H passing over a pinion P21 mounted on a spindle 3 an upper pinion P20 mounted on a member forming a screwdriver and situated in the same axis as that of the controlled upper roller 1 of a twisting device. Each lower pinion P19' entrains by means of a chain H' passing over a pinion P21' mounted on a spindle 3', a lower pinion P20 mounted on a member forming a screwdriver and situated in the same axis as that of the lower roller 1, which it controls, of the same twisting device. In order to more fully understand this mechanism it should be pointed out that for each twisting device there is provided a trio of upper pinions P17', P20, P21 for the entraining of the upper screwdriver controlling its upper roller 1 for entraining its upper belt C1, and a trio of lower pinion P19', P20, P21 is provided for the entraining of the lower screwdriver controlling its lower roller 1 for entraining its lower belt C2, both trios of pinions being in the same vertical plane.

It will be understood from the preceding paragraphs (c) to (h) that the Maltese-cross CM2 controls, by means of its angular rotation, the translation over a specific length of belts C1 and C2 of each twisting device and also the same length of simultaneous translation of each of belts C3 to C9.

To summarise: it should be understood that this mechanism, which has just been described, is realised in such a way that when motor chain A entrains the principle control wheel R in continuous rotation:

1. belt C10 and belt C12 are actuated at the same speed by a continuous translation movement and disc D continuously turn at the same circumferential speed.

2. When Maltese-cross CM1 executes a \( \frac{1}{4} \) revolution, Maltese-cross CM2 remaining immobil, each twisting device executes a complete revolution, an input belt C11 is at the same time translated only by a value corresponding to the width 1 of each transverse ribbon r intended to be twisted in several spots and selected from strips B advanced by this belt.

3. When Maltese-cross CM2 executes \( \frac{1}{4} \) revolution, Maltese-cross CM1 remaining immobil, each belt C1 and C2 of each twisting device, as well as all belts C3 to C9, are simultaneously translated over the same length L, the value of which is slightly greater than the overall gauge radius of a twisting device.

Manufacture by means of this machine, and in accordance with the method of the invention, of small bars twisted in their central section and made of folded-over pastry with a powdering of sugar which, after baking in a cooking device, will constitute cakes known in the trade as Tortillons, is now easily comprehensible. A strip of folded-over pastry with a coating of sugar being placed on the supply belt, and the machine being set in operation, the following stages of manufacture will occur as follows:

a. the strip of pastry B being advanced by one step by the supply belt C11 controlled by eccentric E will be transversely cut off by the cutting device 30, 30' to form the first ribbon r;
b. the simultaneous translation of the belts C3 to C9 and also of belts C1 and C2 of the twisting device, brought about by the rotation by \( \frac{3}{4} \) revolution of Maltese-cross CM2, will supply the first ribbon into the axis O of the twisting devices, a second ribbon having been cut off from strip B during this period of translation;
c. Maltese-cross CM2 having remained immobilised and Maltese-cross CM1 starting to rotate \( \frac{3}{4} \) of revolution, the twisting devices will be caused to rotate completely through 180° and twist \( \nu \) will be formed on the first ribbon, the second ribbon remaining immobilised;
d. Maltese-cross CM1 being immobilised, cross CM2 will once again rotate by a \( \frac{3}{4} \) revolution, thus causing once more the simultaneous translation of belts C3 to C9 and of the C1 and C2 belts of the twisting devices, this translation causing the first ribbon to emerge from these devices and to pass into the
3,889,012

 Twist-flattening devices constitute by belts C7 and 8, and at the same time the second ribbon will be fed into the centre O of the twisting devices, while a third ribbon will be cut off from strip B;

c. Maltese-cross CM2 being immobilised, cross CM1 will once again rotate by ¼ revolution causing the twisting devices to be rotated through 180°, which leads to the formation of twists in the second ribbon, the first and third ribbons remaining immobilised.

d. The operation referred to under (d) repeating itself, the first ribbon will be led by the translation of belts C5 and C6 onto the discharge belt which will entrain it continuously under the belt C10 so as to be cut off by the discs D into pieces, each of which comprises a central flattened twist, at the same time the second ribbon will arrive between belts C7 and C8 of the flattening devices, the third ribbon penetrating into the twisting devices and stopping in the centre thereof, a fourth ribbon now being cut off from the strip B;

g. It follows that the same cycle of operations continues as crosses CM2 and CM1 enter into an angular rotation one after the other until the machine is stopped, for example when strip B is exhausted.

It will also be noted that the machine shown in the Figures and which has just been described was created with a view to obtaining four twisted articles from each ribbon but that it is very easy to develop a machine with a greater throughput, for example one which could produce 10 twisted articles per ribbon simply by doubling abreast the number of ribbons and adding a twisting device and its accompanying input and output belts, the cutting devices being augmented in number as a result, of course, and also the strip supply and discharge belt being embodied in a larger size.

It may be pointed out that tests carried out with the machine which has been described, allowed the manufacture of 260 twisted articles per minute; a machine supplying 10 articles abreast per ribbon would therefore have a throughput of 650 articles a minute.

The present invention is not limited to the embodiments which have just been described, but is capable of being varied and modified in ways which appear to one skilled in the art, within the scope of the invention.

We claim:

1. A method of manufacturing articles in the shape of twisted bars, from a strip of pastry or like material, comprising:
   a. cutting the strip transversely into successive ribbons;
   b. gripping each ribbon transversely thereto at several points spaced along its length, the extreme gripped portions corresponding to the two terminal parts of the ribbon;
   c. twisting a portion of the strip about the longitudinal axis of the strip between adjacent gripped portions, to form a twisted part, one twisted part being formed between each pair of gripped portions;
   d. flattening the twisted part so that they do not become untwisted when each ribbon is liberated from the gripping action, each ribbon then being in the form of a bar with flat parts separated by at least one twisted part.

2. A method as claimed in claim 1 in which the gripped portions are equidistant from each other, the end parts of the ribbons constituting the extreme gripped portion, and all said portions forming flat parts situated in one and the same plane.

3. A method as claimed in claim 1, further comprising cutting each twisted ribbon clearly in the centre of each flat portion between two consecutive twisted parts, the extreme flat parts themselves being cut at a corresponding distance from the adjacent twisted parts, so as to obtain pieces which are of the same length and comprise a central twisted part.

4. A method of manufacturing twisted bars having a central part consisting of folded pastry with a powdering of sugar and which, after passing into a cooking device, will be in the form of cakes, comprising:
   a. the stepped entrainment of a strip of pastry with a coating of sugar by means of the supply belt so that it may be cut off transversely into successive ribbons by means of the cutting device;
   b. the advancing of the first ribbon obtained in the centre of the twisting device by means of belts being subjected to a first jerked advance and between which it is lightly gripped, a second ribbon being cut off from the strip during this time;
   c. the turning-over on themselves by a complete revolution of the part of the first ribbon which are gripped by the twisting device by means of the latter, the other squeezed parts remaining immobile, as is the second cut-off ribbon, the belts not being translated during rotation of the twisting device;
   d. the advancing by a second jerk by means of belts set in translation of the first twisted ribbon into the twist-flattening means and of the second ribbon into the centre of the immobilised twisting device, the supply belts during this time having advanced the strip by the width of a ribbon and the third ribbon then being cut off by the cutting device;
   e. the continuing of these operations in this order, by means of jerked advancing of the belts, separated by the rotation of the twisting device until each twisting ribbon has been cut into pieces, each comprising a central twist, by means of their passage into the cutting device, whereupon these pieces may be fed by the discharge belts to a cooking device in order to obtain at the output of the latter cakes.