

(19)



Europäisches Patentamt

European Patent Office

Office européen des brevets



(11)

EP 0 972 587 A2

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:

19.01.2000 Bulletin 2000/03

(51) Int. Cl.⁷: **B21D 51/22**

(21) Application number: **98830713.8**

(22) Date of filing: **27.11.1998**

(84) Designated Contracting States:

**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE**

Designated Extension States:

AL LT LV MK RO SI

(30) Priority: **10.07.1998 IT RM980462**

(71) Applicant: **Steel Pan s.r.l.**

80026 Caeoria (NA) (IT)

(72) Inventor: **Lanfranco, Roberto**

80145 Napoli (IT)

(74) Representative: **Lanzoni, Luciano**

c/o Bugnion S.p.A.

Via Vittorio Emanuele Orlando, 83

00185 Roma (IT)

(54) **Method for the manufacturing of stainless pots and pans with machined inner surface and product thereby obtained**

(57) The present invention relates to a method for the manufacture of stainless steel pots and pans with machined inner surface. It comprises supplying a strip of stainless steel plate, presenting on one of its sides a smooth surface and on its opposite side a finish decorated with projections, cutting the plate into sheets, cutting the sheets into portions of the desired size and stacking them, lubricating said plate portions, and press forming or drawing, performed in such a way that the concave surface of the pots and pans obtained is the one presenting said finish decorated with projections. The invention also pertains to the product thereby obtained.

EP 0 972 587 A2

Description

[0001] The present invention relates to a method for the manufacture of stainless steel pots and pans with machined inner surface and the product thereby obtained.

[0002] It is known that stainless steel pots and pans improve their anti-adherent properties when the surface, generally of the bottom, in contact with the food being cooked is constructed with depressions, or with depressions and projections, of various shapes and sizes, or in any case with machining able to confer a lack of surface uniformity that minimises the adherence of the food being cooked. A surface of this type shall hereinafter be called a machined surface.

[0003] Until now, the machined surface has been obtained by forming prior to or subsequent to the drawing operation, or other mechanical machining necessary to obtain the desired pots and pans.

[0004] Obtaining the machined surface in this manner, on each individual piece, already formed, in other respects, in a definitive manner, entails particular attention to avoid manufacturing defects and in any case an expenditure of time linked to the operation.

[0005] The time expenditure increases whenever it is necessary to manufacture pots and pans, generally pans and baking pans, of various sizes and formats, considering the equipment and the accessories needed on each occasion.

[0006] Moreover, in forming projections on the inner concavity of the pot, recesses are created on its outer bottom. Such recesses become a receptacle for dirt, and require careful cleaning, which is normal and simple on pots and pans with smooth or simply glazed.

[0007] To avoid this inconvenience of use, to the pots and pans is applied a bottom coating used also for better heat distribution, as is normal instead in quality pots and pans.

[0008] It should further be noted that the projections or the depressions in prior art pots and pans are present only on the bottom of the inner concavity, so their function of improving the anti-adherent effect of the surface is limited only to that part of the utensil.

[0009] The object of the present invention therefore is to eliminate the aforementioned drawbacks, allowing to eliminate the operative phase of obtaining the machined surface from the method for manufacturing pots and pans which will nonetheless present on the finished product, such machined surface on its concave surface, i.e. the entire surface destined to come in contact with the food.

[0010] A further object is that of machining the entire inner concave surface of the pots and pans, i.e. both the bottom and its lateral wall, in a uniform, uninterrupted manner, thereby conferring to the entire inner surface of the cooking utensil the best antiadherent effect, while simultaneously retaining a smooth outer surface and a flat bottom.

[0011] The invention, as it is characterised by the claims that follow, solves the problem of providing a method for the manufacture of stainless steel pots and pans with machined inner surface, of the type comprising supplying stainless steel plate in a strip, cutting the strip into sheets, cutting the sheets into portions of the desired sizes and stacking them, lubricating said plate portions, press forming or drawing, trimming the formed pieces, flanging the formed pieces, flattening the flanges, which from a general point of view is characterised in that said stainless steel plate presents on one of its sides a smooth surface and on its opposite side a finish decorated with projections, and the forming or drawing operation is performed in such a way that the concave surface of the pots obtained is the one presenting said finish decorated with projections.

[0012] The invention also allows to obtain a product, such as a pot, a baking pan, a pan or the like, which from a general point of view is characterised in that the inner concave surface of the product both of the bottom and of the lateral wall presents in uniform and continuous manner a finish decorated with projections with anti-adherent effect and in that its outer convex surface is smooth.

[0013] Further features and advantages of the present invention shall become more readily apparent from the detailed description that follows.

[0014] In accordance with the present invention, as starting raw material, for instance, AISI 304 stainless steel plate is preferably used, in the form of a strip with thickness from 0.8 to 1.5 mm. Such plate presents on one of its sides a smooth surface and on its opposite side a finish decorated with projections. Preferably it can be plate with decorated finish called "linen fabric". These are 18/10 stainless steels so rolled to be normally destined to constitute covering panels (e.g. walls or lifts) or box structures with an aesthetically machined surface and with good forming characteristics.

[0015] It has been experimentally ascertained that the decoration with projections of said plate, beyond its aesthetic function, conferred to the surface itself a highly anti-adherent effect for the foods placed thereon to be cooked, with respect to the smooth surface thereof, whether it had been smoothed or glazed.

[0016] According to the invention, intending to exploit such new technical effect, the plate strip is subjected to cutting into pieces of plate of various formats depending on the pots or pans to be formed. The pieces of plate are stacked in a container, ready for subsequent work processes.

[0017] Each piece of plate is first lubricated and then placed under the press for forming or drawing. This operation is performed in such a way that the concave surface of the pots and pans obtained is the one presenting said finish decorated with projections.

[0018] The piece of plate is then trimmed with the press whereby excess parts are eliminated.

[0019] Flanging and flange flattening are then per-

formed. The next phase is that of welding any handles and then degreasing and washing.

[0020] The method according to the invention can use as starting material, differently from the strip, plate in sheets or already in disks. 5

[0021] Stainless steel plate may be of different types. It may have a machined surface with different designs, such as elephant skin and the like.

[0022] The product obtained with said method is therefore characterised in that it has an inner concave surface of the product, both of its bottom and of the lateral wall, presenting in a uniform and continuous manner a finish decorated with projections, conferring to the utensil an anti-adherent effect, and in that its outer convex surface is smooth. 10 15

[0023] The scope of protection of the invention includes the pots and pans manufactured with the method described above. The invention thus conceived can be subject to modifications and variations without thereby departing from the scope of the inventive concept. 20

Claims

1. Method for the manufacture of stainless steel pots and pans with machined inner surface, of the type comprising supplying stainless steel plate in a strip, cuffing into sheets, cuffing the sheets into portions of the desired sizes and stacking them, lubricating said plate portions, press forming or drawing, trimming the formed pieces, flanging the formed pieces, flattening the flanges, characterised in that; 25 30
 - said stainless steel flange presents on one of its sides a smooth surface and on its opposite side a finish decorated with projections, and 35
 - the forming or drawing operation is performed in such a way that the concave surface of the pots and pans obtained is the one presenting said finish decorated with projections. 40
2. Method according to claim 1, characterised in that said decorated finish is the one denominated "linen fabric". 45
3. Product manufactured starting from stainless steel plate decorated with projections on one of its sides, and smooth on the other by press forming or drawing, with trimming the formed pieces, flanging the formed pieces, flattening the flanges, such as a pot, a baking pan, a pan or the like, characterised in that the inner concave surface of the product both of the bottom and of the lateral wall presents in a uniform and continuous manner a finish decorated with projections conferring to the entire inner concave surface an anti-adherent effect and in that its outer convex surface is smooth. 50 55