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(54) **Manufacturing process of structural and aesthetic frames for a cooking plate and frame obtained thereby**

(57) A steel strip is made out an unequal angle with a form of a capital letter L-shaped, from that are sheared four straight-line cut down size equal to the sides of the

quadrangular frame. The adjacent extremity of the sides are joined among them by means of a hook (8) inserted in a buttonhole (6).

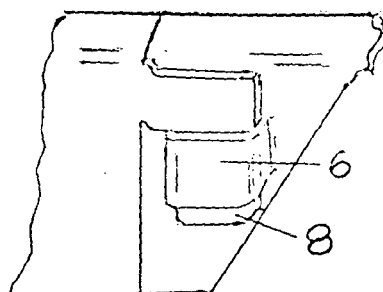


FIG. 4

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Description

[0001] The present invention relates to a manufacturing process of structural and aesthetics frames for the cooking floors and/or fixtures and kitchen stoves, and frames obtained with such process.

[0002] At the present state of the art are manufactured numerous models of range and cooking floors. In some models the cooking take place by gas. In others by electric energy and resistors or by electric lamps. Directly above the warm source there are a ceramic-glass, or similar, resistant to fire and to heat. The food containers for cook or for warm are put down on the above mentioned ceramic-glass precisely above the selected kitchen stove. The inferior face of the ceramic-glass is fastened to the upper edge of a stamping sheet frame. The fastening between the two pieces take place by means of silicone. Generally the cookers have a rectangular shape with an average width of cm 50/60. Very varied is instead the length because depending on the member and on the kinds of kitchen stoves. Therefore, sometimes, when the monobloc ceramic-glass and structural and aesthetics frame is put on the range the sole gravity can confer asufficient static stability, sometimes instead is fastened by screws or by springs. The superior face of the today's used ranges have generally a rectangular shape; sometimes squared and therefore the frame have to conform to the shapes required by the market.

[0003] Till now, everyone of the above-mentioned well-known frames is formed by an only one blanked piece sheared out of a plate having an area abundantly more wider than the area of the cooker on which will have put on.

[0004] The till now well-know manufacturing process cause drawbacks. In fact, for the shearing of sheets so large, necessitates very large spaces in the factory, moreover necessitates very powerful shearing machines, then are very voluminous and expensive whether as purchase or as use and maintenance. Besides need very much employed staff and a numerous equipment of big blanking die. Also for to press so big perimeter of sheets necessitates very large move spaces in the factory and necessitates very powerful forming presses, then also are very big and expensive wheter as purchase or as use and maintenance, very voluminous and cumbersome, rather slow, and expensive maintenance, very much employed staff and a numerous equipment of big forming die and besides there are an enormous quantity of scraps, particularly from the central part of the iron sheet. Besides is necessary to consider that often the union between frame and glass take place far away from where the frame is manufactured. Then, since the frame is very much thin and very much weak compared with its huge perimeter, risk of being deformed and unemployable during the transportation. Therefore, for no run this risk, needs protect the frames by means of strong packings: then further costs to support. Besides as regards the union between the inferior face of the glass and the

superior edge of the frame formed from a sole piece of stamped plate: whereas the glass is rigid and has a surface perfectly plate, the frame in only one piece is substantially rigid and hardly ever has the superior edge perfectly plate and therefore create enormous problems for the gluing.

[0005] The invention as claimed is intended to remedy these drawbacks and to offer in addition, various advantages. It is founded on the principle of made out, of a steel strip, four piece that, after having been pressed, are firmly joined together by keying developing a frame fixable to the glass. Everyone of the four pieces component the frame aaare sheared out of a steel strip broad equal or only lightly superior to the broad of the corresponding piece of frame to obtain. Therefore for shear from the steel strip so small surfaces are sufficient small spaces in the factory and are sufficient low power shearing mashines then also very small, of low cost price and low operating costs, not much cumbersome, quick, a derisory costs of maintenance, not much personnel and a very little kit of blanking die of little size. For forming structural shapes so narrow and so short it is enough to have very little move surfaces in the factory, it is enough to have low power forming presses then also very small, low cost price and low operating costs, not much voluminous and little encumbrance, fast, a low cost of maintenance, an only worker employed, otherwise also easily automatizable, a little kit of simple and little forming dies. Besides, need only little section iron suitables to forming the frames and besides there are a derisory off-cuts production. Besides, when the union between frame and glass must do far away from where are manufactured the short and small section iron, the packing can be a simple binding in bundles of the short and small section iron, then with a derisory cost. In this manner the pieces are free from deformation dangers during the transportation and also for their transportation, since they take up only a very little volume, one has low costs. Besides, the frame being formed by four pieces of stamping sheet has a little deformability and can perfectly adhere to the inferior flat face of the glass and become also flat in the moment in which the silicone will be settled. Therefore between frame and glass occur a perfect and continuous union upon the whole perimeter.

[0006] These and other objects and advantages of the present invention will be more readily apparent from a consideration of the following detailed description of the drawing illustrating a preferred embodiment of the invention. Referring to the drawing enclosed shall be described more minutely one of the possible forms of practical carrying out showed to simple title of example.

[0007] Fig. 1 is a plan, from the bottom towards the top, of the ensemble of a frame carrying aut with the process of this invention.

[0008] Fig. 2 is a perspective, take from the interior of the frame perimeter, of one of the two extremity of one of two side of the rectilinear section iron making up a frame carrying out with the process of this invention.

[0009] Fig. 3 is a perspective, take from the interior of the frame perimeter, of one of the two extremity of one of two side with bent terminals.

[0010] Fig. 4 is a perspective, take from the interior of the frame perimeter, a conjunction between an extremity of a side of rectilinear section and a bent extremity of an adjacent side. 5

[0011] In Fig. 1 the frame is drawn approximately in scale 1:5. In the Fig. 2, 3, 4 the details are drawn approximately in scale 1:1. 10

[0012] Again with reference to the figures we add that the frame 1 has generally a rectangular form, but could have a square form. The frame has two equal and exact opposite sides 2 and 3. The sides 2 and 3 are substantially formed by with upside-down unequal angle L sections iron. The two ends of sides 2 and 3 are 90° quarter bended towards the inside of the frame with radiused curve to weaken the edge. Every extremity of each side 2, 3, 4, 5 is connected to the corresponding extremity of the adjacent side in such a way as shall not be able to easily to release. For instance, everyone of the two extremity of the sides 2 and 3 has a buttonhole with a recess 7; while everyone of the two extremity of the sides 4 and 5 has a hook 8. For compound the frame, man insert every hook 8 in the corresponding recess 7 of the buttonhole 6 of the adjacent side extremity. We consider this is the more qualified way of connecting. 15 20 25

Claims 30

1. Manufacturing process of structural and aesthetics frames for the cooking floors for the cooking and/or heating of foods characterised in that: from a steel strip is made out an unequal angle with substantially a form of a capital letter L-shaped, that are sheared four straight-line cut down size and are coupled two by two as for the length and the frame are made by two sides (2, 3) of equal size and exact opposite and two rectilinear sides (4, 5) of equal size and exact opposite, and the two ends of sides (2, 3) are 90° quarter bended towards the inside of the frame with radiused curve to weaken the edge. 35 40
2. Manufacturing process, as claimed in claim 1, that comprises a frame (1) where every extremity of each side (2, 3, 4, 5) is connected to the corresponding extremity of the adjacent side by the hooking of a hook (8), joint with an extremity of a side, inside a recess (7) of a buttonhole (6), joint with the adjacent extremity of the successive side. 45 50
3. Manufacturing process, as claimed in claim 1, that comprises a frame (1) where the adjacent extremity of the sides (2, 3, 4, 5) are joined among them by means of hook. 55

FIG. 1

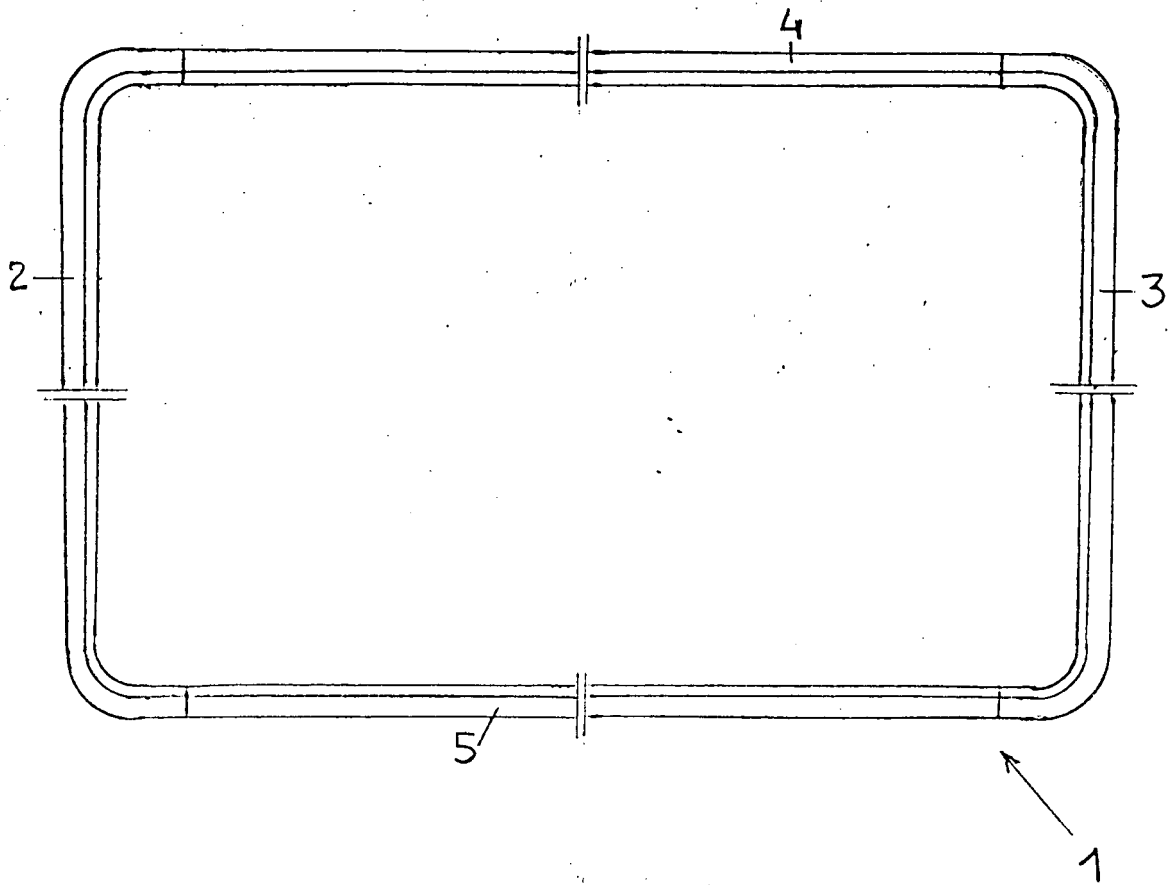


FIG. 2

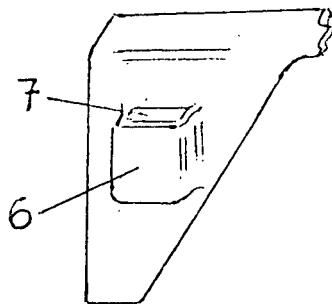
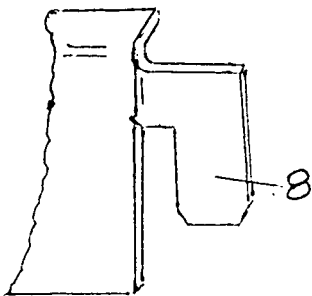


FIG. 3

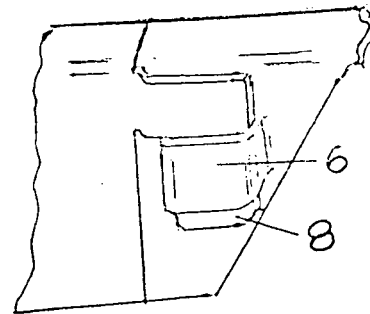


FIG. 4



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Application Number
EP 05 02 5276

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	FR 2 602 649 A (CHANG CHARLES) 19 February 1988 (1988-02-19)	1	F24C15/10
Y	* abstract; figure 1 *	2,3	
X	----- US 4 205 486 A (GUARNACCI, EMILIO) 3 June 1980 (1980-06-03) * figures 1,2 *	1	
X	----- PATENT ABSTRACTS OF JAPAN vol. 009, no. 333 (M-443), 27 December 1985 (1985-12-27) & JP 60 164135 A (MATSUSHITA DENKI SANGYO KK), 27 August 1985 (1985-08-27) * abstract; figure 2 *	1	
Y	----- PATENT ABSTRACTS OF JAPAN vol. 2003, no. 12, 5 December 2003 (2003-12-05) & JP 2004 184048 A (RINNAI CORP; YAMADA KEIKINZOKU SEISAKUSHO:KK), 2 July 2004 (2004-07-02) * abstract *	2,3	
Y	----- PATENT ABSTRACTS OF JAPAN vol. 2003, no. 12, 5 December 2003 (2003-12-05) & JP 2004 293809 A (RINNAI CORP), 21 October 2004 (2004-10-21) * abstract *	2,3	
X	----- US 5 579 596 A (KOVACS ET AL) 3 December 1996 (1996-12-03) * abstract; figures 1,4-6 *	1	
X	----- US 5 617 660 A (POLLACK ET AL) 8 April 1997 (1997-04-08) * abstract; figures 1-6 *	1	
	----- -/-		
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 1 March 2006	Examiner Verdoordt, L
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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EUROPEAN SEARCH REPORT

Application Number
EP 05 02 5276

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	EP 0 018 426 A (BOEHM, HANS-GEORG, DR. RER. NAT) 12 November 1980 (1980-11-12) * the whole document *	1	
A	EP 0 610 817 A (BOSCH-SIEMENS HAUSGERAETE GMBH) 17 August 1994 (1994-08-17) * column 3, line 36 - line 48; figure 6 *	1	
A	US 6 455 819 B1 (POHL JOERG ET AL) 24 September 2002 (2002-09-24)	1-3	
A	US 1 478 470 A (COULSTON EARL V) 25 December 1923 (1923-12-25)	1	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
Place of search		Date of completion of the search	Examiner
The Hague		1 March 2006	Verdoodt, L
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 05 02 5276

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01-03-2006

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
FR 2602649	A	19-02-1988	DE 3627524 A1	18-02-1988
US 4205486	A	03-06-1980	BE 864896 A1	03-07-1978
			CA 1110918 A1	20-10-1981
			CH 626942 A5	15-12-1981
			DE 2810256 A1	21-09-1978
			FR 2384093 A1	13-10-1978
			IT 1081320 B	21-05-1985
			NL 7802842 A	19-09-1978
JP 60164135	A	27-08-1985	JP 1642950 C	28-02-1992
			JP 3003863 B	21-01-1991
JP 2004184048	A	02-07-2004	CN 1538113 A	20-10-2004
			TW 227769 B	11-02-2005
JP 2004293809	A	21-10-2004	NONE	
US 5579596	A	03-12-1996	NONE	
US 5617660	A	08-04-1997	NONE	
EP 0018426	A	12-11-1980	NONE	
EP 0610817	A	17-08-1994	DE 4303907 A1	11-08-1994
US 6455819	B1	24-09-2002	DE 19856538 C1	04-05-2000
			EP 1008811 A2	14-06-2000
			PL 337014 A1	19-06-2000
US 1478470	A	25-12-1923	NONE	