

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
17 April 2008 (17.04.2008)

PCT

(10) International Publication Number
WO 2008/043124 A1

(51) International Patent Classification:
A47J 37/08 (2006.01)

(21) International Application Number:
PCT/AU2006/001509

(22) International Filing Date: 12 October 2006 (12.10.2006)

(25) Filing Language: English

(26) Publication Language: English

(71) Applicant (for all designated States except US): **TOM STODDART PTY LTD** [AU/AU]; 215 Jackson Road, Sunnybank Hills, Queensland 4109 (AU).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **JOHNSON, Craig, Robert** [AU/AU]; 7 Richard Street, Rochedale South, Queensland 4123 (AU).

(74) Agent: **PIZZEYS PATENT AND TRADE MARK ATTORNEYS**; Level 14, ANZ Centre, 324 Queen Street, Brisbane, Queensland 4000 (AU).

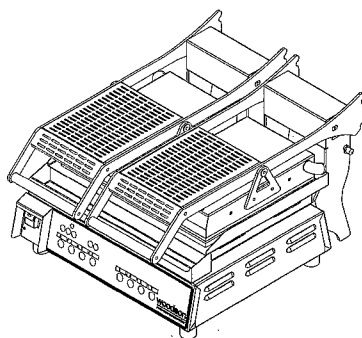
(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

(54) Title: CONTACT TOASTER



(57) Abstract: There is provided a split lid contact toaster including a toaster body including a heated platen, spaced mountings supported on one side of the toaster body and extending behind the side and above the plane of the upper surface, two pairs of spaced control arms each pivoted to respective said mountings and spanning the surface away from said side, the ends of each pair of the control arms remote from the mountings being conjoined by a respective handle, and heated upper platens suspended below respective pairs of the control arms on spaced struts fixed to the platens substantially within the footprint thereof, and pivoted to the respective control arms.

WO 2008/043124 A1

CONTACT TOASTER

Field of the Invention

This invention relates to a contact toaster.

This invention has particular but not exclusive application to a commercial –
5 standard, flat contact toaster, and for illustrative purposes reference will be made
to such application. However, it is to be understood that this invention could be
used in other applications, such as panini grills or the like.

Background of the Invention

Contact toasters in the form of a horizontally disposed, two-sided cooking
10 apparatus (otherwise known as clamshell cooking systems or grills) are capable of
simultaneously cooking two sides of various food products, including toasted
sandwiches, hamburger patties, sausage patties, chicken, or other foodstuffs.

The apparatus generally includes one or two upper heated platens and a
lower heated platen on a base. The one or more upper platens are coupled to one
15 or more side mounted operating arms with handles, pivoted to the base for
swinging the upper platens between a lowered cooking position overlying the
lower platen and a raised position.

In these contact toasters, there is usually provided a pair of spaced
operating arms for the upper platen, each pivoted from the rear edge of the
20 apparatus and interconnected at their front ends by an insulated or self-cooling
handle. The platen is pivoted at its sides between the operating arms at a balance
point. In use, the handle is lifted to raise the platen to admit a sandwich to the
lower platen. The operating arms may be spring loaded to so retain the platen
and/or to control platen pressure on the product.

25 Disadvantages of this kind of construction includes the overall difficulty in
cleaning about the hinge area and limits to the ability to accommodate differing
thicknesses, despite the inherent self levelling nature of the balance point pivoting
arrangement.

Dual platen or split lid contact toasters are preferred for use as sandwich
30 toasters since the respective halves can be used independently. This form of
apparatus has the additional disadvantage of significantly reduced net cooking
area. Split lid contact toasters such as the STAR[®] branded product of Star
Manufacturing International, Inc utilizes a torsion bar arrangement articulating a

pair of control arms to which upper heated platens are mounted by a rocker mount. The arrangement is a high precision-machined arrangement of supports, torsion elements and the like, which are exposed and difficult to clean. The machine is expensive to manufacture.

5

Description of the Invention

With the foregoing and other objects in view, this invention in one aspect resides broadly in a contact toaster including:

a toaster body including a heated platen;

10 a pair of spaced mountings supported on one side of the toaster body and extending behind the side and above the plane of the upper surface;

a pair of spaced control arms each pivoted to a respective said mounting and spanning the surface away from said side, the ends of the control arms remote from the mountings being conjoined by a handle;

15 a heated upper platen suspended below the control arms on spaced struts fixed to the platen and pivoted to the respective control arms.

The toaster body may comprise a housing wherein control means for the apparatus may be housed. The toaster body may include a user interface included but not limited to temperature and time displays, user selectable inputs
20 such as setting of temperatures and times, or the like. The control means may include the means for supplying electrical power to the upper platen assembly, such as by means of a flexible cable. The control means may include thermostatic control elements such as electronic or electromechanical thermostats. The control means may include timer elements such as electronic or electromechanical
25 switching and/or displaying timers. The respective heated platens may be controlled separate thermostats.

The heated platen and the upper heated platen may have contact surface portions each of the same or different material selected from cast iron, stainless steel, mild steel, copper or other metal or metal laminate such as ALINOX®. The
30 respective platens may be coated with non-stick material of organic or inorganic material, such as polyfluoroolefin polymers, including but not limited to polytetrafluoroethylene (PTFE) and its compositions.

The control arms may be located over the top of the upper heated platen in use. This enables the upper platen to substantially cover the footprint of the heated platen without the control arms extending beyond the lateral footprint of the body as a whole.

5 The geometry of the platen suspension and control arm pivoting arrangement, the position rearward of the body and upward of the heated platen of the control arm pivot mounting, and the shape and configuration of the control arms, may be selected to allow the upper heated platen a rattle scope on closure to provide self levelling in use, and may also allow an open loading position
10 wherein the upper heated platen contact surface is about 40° from the vertical when opened to a selected position with the lower edge thereof over the back edge of the heated platen. "Rattle scope" as used herein is the capacity of the upper heated platen to self level and maintain substantially even pressure on product to be toasted of a range of different thicknesses. The control arms may be
15 readily configured by stamping or laser cutting from flat bar or sheet.

The control arms may cooperate with means to allow the upper heated platen to be retained in selection of positions. For example, apart from the position where the platen is in use toasting product, there may be provided a first position where product may be loaded onto the heated platen and a second
20 position where the machine is fully open for cleaning. In the case of the preferred flat bar or sheet control arms there may be formed an integral détente sector portion adapted to cooperate with a spring loaded détente bar associated with the pivot mountings. In addition as this arrangement may be fully enclosed except for the flat bar exit slots for the control arms the mechanism may be substantially
25 protected from contamination by a simple eg. stainless steel removable cover.

In the case of a split lid contact toaster, the position of the arms over the top of each of the upper heated platens means that the Upper heated platens may operate very close together. By this means the upper heated platens may in use overlie substantially the entire heated surface of the heated platen. In practice, the
30 thermally massive heated portion of the upper heated platens may extend over substantially the entire heated platen surface in use. The upper platen body housing the heating element and attaching the struts may be slightly smaller in footprint, allowing flat struts to be entirely within the footprint of the upper platen

heated portion. Bringing the upper platens and the handles closer together has resulted in the unexpected advantage of reducing the potential hazard of trapping the users thumbs or hand between the handles or the platens.

5 The simple plain rods providing both the pivot and spring loaded détente functions of the preferred arrangements allows the use of simple bushes and slots for articulating them, avoiding the complexity of torsion bar/torque tube based constructions.

The bottom platen may be provided with a gutter to assist in cleaning.
In a further aspect, this invention in one aspect resides broadly in a split lid contact
10 toaster including:

- a toaster body including a heated platen;
- spaced mountings supported on one side of the toaster body and extending behind the side and above the plane of the upper surface;
- two pairs of spaced control arms each pivoted to respective said mountings
15 and spanning the surface away from said side, the ends of each pair of the control arms remote from the mountings being conjoined by a respective handle;
- heated upper platens suspended below respective pairs of the control arms on spaced struts fixed to the platens substantially within the footprint thereof, and pivoted to the respective control arms.

20

Brief Description of the Drawings

In order that this invention may be more readily understood and put into practical effect, reference will now be made to the accompanying drawings which
25 illustrate a preferred embodiment of the invention and wherein:

FIG. 1 is a perspective view of apparatus in accordance with the present invention;

FIG. 2 is a side view of the apparatus of FIG. 1;
30 FIG. 3 is a top view of the apparatus of FIG. 1;
FIG. 4 is a front view of the apparatus of FIG. 1;
FIG. 5 is an exploded view of the apparatus of FIG. 1;
FIG. 6 is a complementary part assembly of the view of FIG. 5.

Description of the Embodiment(s)

In the figures there is provided a split lid toaster including a body 1 supporting a bottom hot plate support 2 via a bottom plate support infill 3. A crumb tray 4 is located at the front, and a gutter 5 is about the remaining three sides. A bottom platen 6 is formed of ALINOX sheet and is supported above a 1200W lower element 23. Top plates 7 of ALONOX form the working surfaces of upper heated platens.

The components LH lid 8, RH lid 9, arm 10, pivot pin 11, spring pin 12, base 13 PVC Tube 14, RH outer spring support 15, pivot plate 16, spring brace 17, spring lid 18, LH outer spring support 19, RH inner spring support 20, LH inner spring support 21, 500W element 22, bottom plate fixing angle 24, bottom element cover 25, top element cover 26, internal support 27, probe clamp 28, thermostat bracket 29, aluminium heat reflector 30, decal 31, LH top plate fixing angle 32, RH top plate fixing angle 33, cam spring holder 34, shaft 35, bush 36, pivot pin bush 37, body gasket 38, heat reflector plate 39, cam spring pin bush 40, crumb tray spacer 41, mushroom head screws 42, washers 43, torsion springs 44, flexible conduit elbow 45, 15-amp ceramic terminal block 46, switch 47, and indicator light 48 are as indicated in FIG 5.

The componenets 500W element 119, 1200W element 120, decal 128, washers 129, torsion spring 130, switch 133, indicator light 134, bush 142, PVC tube 144, cam spring pin bush 145, 1200W element 149, needle roller bearing 150, 270° thermostat 151, circuit board 152, stainless steel extension spring 153 and 72° thermal fuse 154 are as indicated in FIG 6. are as indicated.,

Apparatus in accordance with the foregoing embodiment has the advantages of brining together the two top platens to give the cooking surfaces a greater area. This also allows compact overall size of the unit relative to cooking surface area. The "Alinox" stainless steel/aluminium plates are even heating and easy to keep clean. The selectable détentes hold the top platens up at an approx angle of 40° from horizontal, as well as fully open for cleaning. The gutter in the bottom plate assists in the cleaning of the plates and to assist in the removal of the cooked product. Moving the side arms to the top of the top platen has the obvious advantage of cooking surface maximisation, and also allows the handles

to be brought closer together. This reduces the potential hazard of trapping the user's thumbs or hand between the handles or the plates. The new rear spring housing/hinge assembly with a position locking mechanism using bushes and springs is simple and economical to manufacture. The machine has enhanced
5 cleanability of the platens and the unit as a whole. The hinging arrangement is robust. The positive locking into the half up position of the top platens is safe. The durability of the unit is enhanced by its construction, and the use of and the use of an electromechanical thermostat provides reliability to the unit.

It will of course be realised that while the above has been given by way of
10 illustrative example of this invention, all such and other modifications and variations thereto as would be apparent to persons skilled in the art are deemed to fall within the broad scope and ambit of this invention as defined in the claims appended hereto.

CLAIMS

1. A contact toaster including:
 - a toaster body including a heated platen;
 - a pair of spaced mountings supported on one side of the toaster body and extending behind the side and above the plane of the upper surface;
 - a pair of spaced control arms each pivoted to a respective said mounting and spanning the surface away from said side, the ends of the control arms remote from the mountings being conjoined by a handle;
 - a heated upper platen suspended below the control arms on spaced struts fixed to the platen and pivoted to the respective control arms.
2. A contact toaster according to claim 1, wherein the toaster body includes a housing containing control means for the apparatus may be housed.
3. A contact toaster according to claim 2, wherein the control means includes one or more of temperature and time displays, user selectable inputs including temperature and time setting inputs, thermostatic control elements selected from electronic or electromechanical thermostats, and timer elements including electronic or electromechanical switching timers.
4. A contact toaster according to claim 3, wherein the respective heated platens are controlled separate thermostats.
5. A contact toaster according to claim 1, wherein the heated platen and the upper heated platen have contact surface portions formed of the same or different material selected from cast iron, stainless steel, mild steel, copper or other metal or metal laminate.
6. A contact toaster according to claim 5, wherein the heated platen and the upper heated platen contact surface portions are each formed of aluminium/stainless steel laminate.

7. A contact toaster according to claim 5, wherein the heated platen and the upper heated platen contact surface portions are coated with non-stick polyfluoroolefin polymer containing material.
8. A contact toaster according to claim 1, wherein the control arms are located over the top of the upper heated platen in use.
9. A contact toaster according to claim 8, wherein the geometry of the platen suspension and control arm pivoting arrangement, the position rearward of the body and upward of the heated platen of the control arm pivot mounting, and the shape and configuration of the control arms, are selected to allow said upper heated platen a rattle scope on closure to provide self levelling in use, and an open loading position wherein the upper heated platen contact surface is about 40° from the vertical when opened to a selected position with the lower edge thereof over the back edge of the heated platen.
10. A contact toaster according to claim 1, wherein the control arms cooperate with means to allow the upper heated platen to be retained in selection of positions.
11. A contact toaster according to claim 10, wherein the control arms are provided with means retaining the upper heated platen in a first position where product may be loaded onto the heated platen, wherein the upper heated platen contact surface is about 40° from the vertical.
12. A contact toaster according to claim 11, wherein the control arms are provided with means retaining the upper heated platen in a second position where the machine is fully open for cleaning.
13. A contact toaster according to claim 10, wherein the control arms are flat bar or sheet metal control arms having formed therewith an integral détente sector portion adapted to cooperate with a spring loaded détente bar associated with the pivot mountings.

14. A contact toaster according to claim 13, wherein the détente sector includes a détente retaining the upper heated platen in a first position where product may be loaded onto the heated platen, wherein the upper heated platen contact surface is about 40° from the vertical.

15. A contact toaster according to claim 13, wherein the détente sector includes a détente retaining the upper heated platen in a second position where the machine is fully open for cleaning.

16. A contact toaster according to claim 13, wherein the détente sectors, control arm pivots, and spring loaded détente bars are enclosed and substantially protected from contamination by a removable cover.

17. A contact toaster according to any one of the preceding claims, wherein there are two upper heated platens forming a split lid contact toaster.

18. A contact toaster according to claim 17, wherein the control arms are located over the top of the respective upper heated platens, and the upper heated platens in use overlie substantially the entire heated surface of the heated platen.

19. A contact toaster according to claim 18, wherein a heated portion forming the contact surface of the upper heated platens extends over substantially the entire heated platen surface in use, the upper platen body housing the heating element and attaching the struts being smaller in footprint, allowing said struts to be entirely within the footprint of the upper platen heated portion.

20. A split lid contact toaster including:

a toaster body including a heated platen;

spaced mountings supported on one side of the toaster body and extending behind the side and above the plane of the upper surface;

two pairs of spaced control arms each pivoted to respective said mountings and spanning the surface away from said side, the ends of each pair of the control arms remote from the mountings being conjoined by a respective handle;

heated upper platens suspended below respective pairs of the control arms on spaced struts fixed to the platens substantially within the footprint thereof, and pivoted to the respective control arms.

1/3

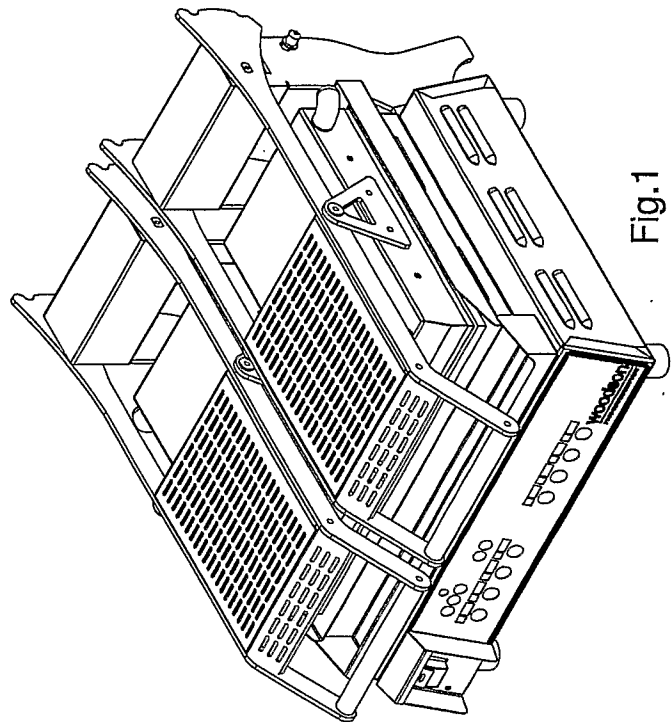


Fig.1

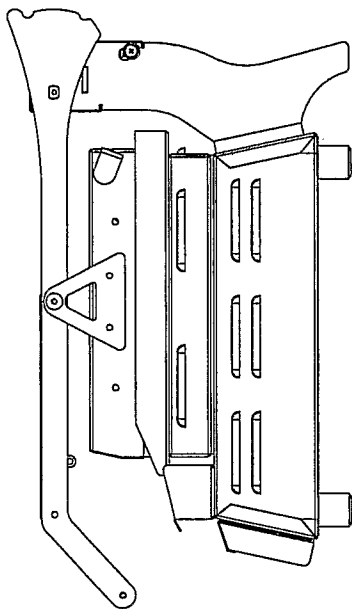


Fig.2

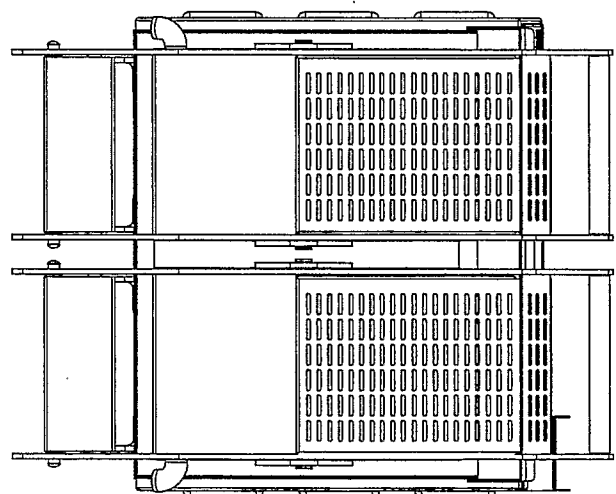


Fig.3

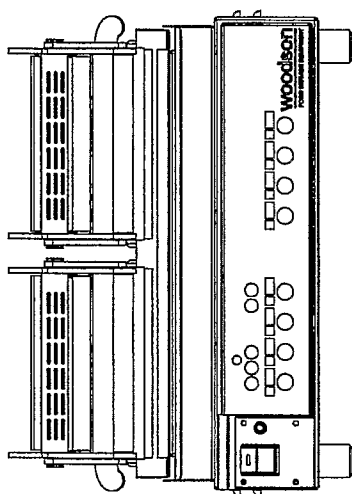


Fig.4

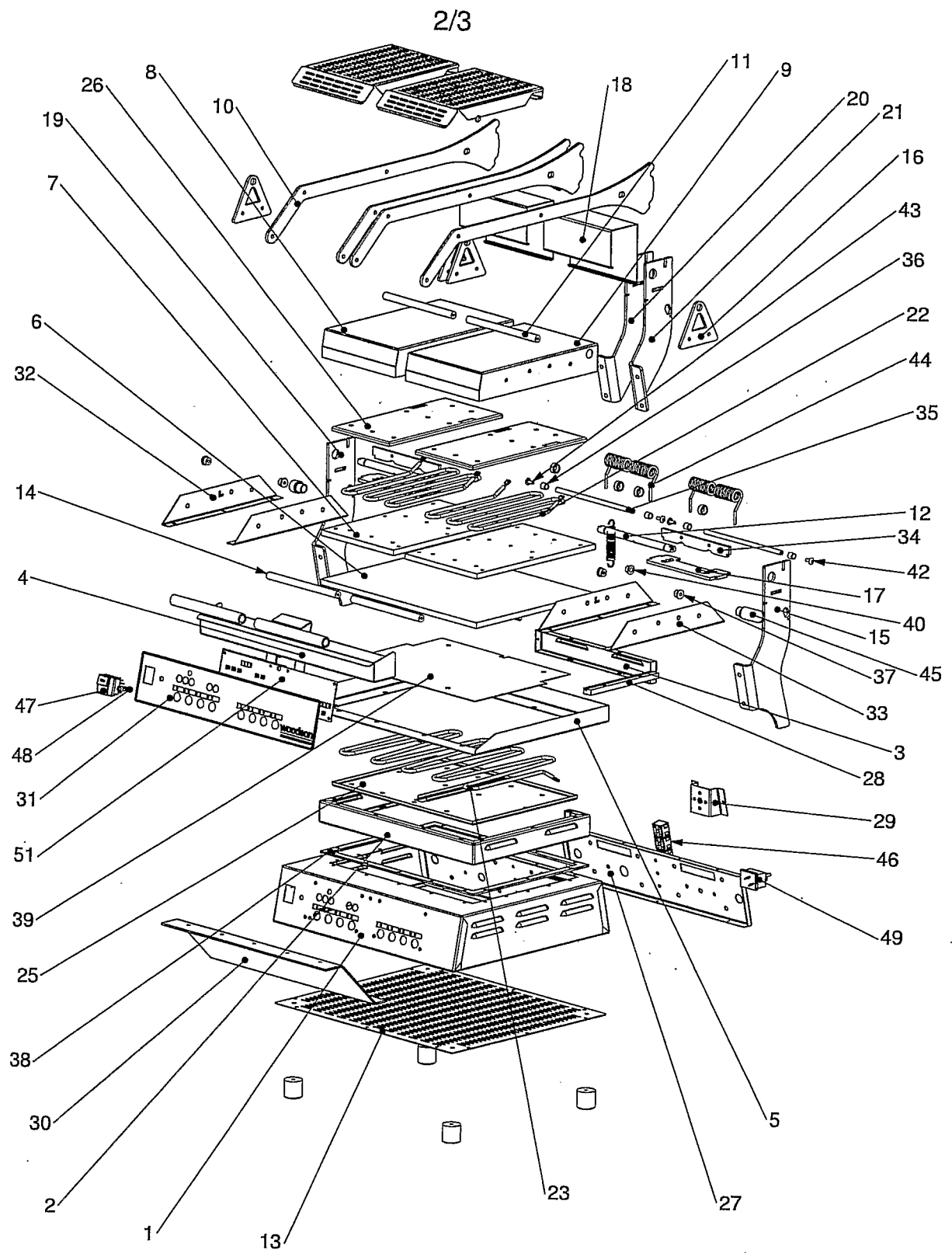
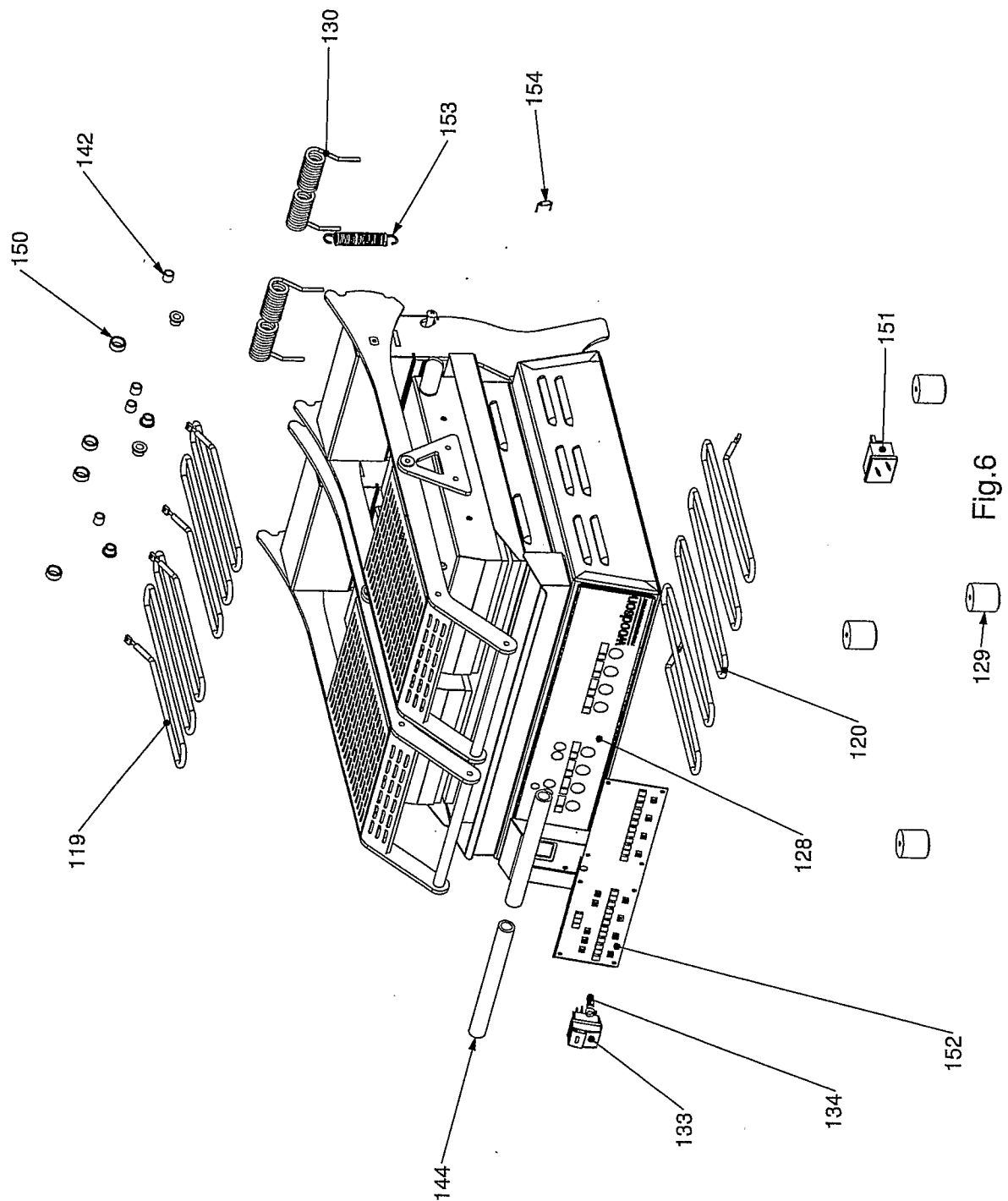


Fig.5

3/3



INTERNATIONAL SEARCH REPORT

International application No.
PCT/AU2006/001509

A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl.

A47J 37/08 (2006.01)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

DWPI, A47J 37/00, 37/06, 37/08 key words SANDWICH+, BREAD+, TOAST+, GRILL+, PLATEN+, PIVOT+, ARM+, HING+, PLATEN+, PIVOT+, ARM+, HING+

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DE 20206236 U (EUPA INT CORP) 8 August 2002 Whole document	1-20
A	US 6363835 B (WU) 2 April 2002 Whole document	1-20
A	WO 2005/037035 A (BREVILLE PTY LIMITED) 28 April 2005 Whole document	1-20



Further documents are listed in the continuation of Box C



See patent family annex

* Special categories of cited documents:	
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"E" earlier application or patent but published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search
16 November 2006

Date of mailing of the international search report
04 DEC 2006

Name and mailing address of the ISA/AU
AUSTRALIAN PATENT OFFICE
PO BOX 200, WODEN ACT 2606, AUSTRALIA
E-mail address: pct@ipaaustralia.gov.au
Facsimile No. (02) 6285 3929

Authorized officer

SARAVANAMUTHU PONNAMPALAM
Telephone No : (02) 6283 2070

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/AU2006/001509

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report		Patent Family Member			
DE	20206236	GB	2387531	US	6439108
US	6363835	NONE			
WO	2005037035	AU	2004281071	CA	2542601
				EP	1677653
Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.					
END OF ANNEX					