Abstract: An oven bag includes a bag-like body having a closed bottom end, side walls extending upwardly from the closed bottom end, and an open top end. The closed bottom end may include a gusset which allows the bag to stand-up on its own. The oven bag may include an easy to use closure system to close and seal the top opening. The closure system may include a flap portion on one side of the top opening and a high temperature adhesive disposed proximate the top opening on an opposite side of the top opening. The oven bag may also include a venting system in an upper portion of the bag. The oven bag may also include an easy opening tear-off system in an upper portion of the oven bag.
HIGH TEMPERATURE STAND-UP OVEN BAG

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit of U.S. Application No. 60/910,281, filed April 5, 2007, the entirety of which is incorporated by reference herein.

TECHNOLOGY FIELD

[0002] The present invention relates in general to the culinary arts, and more particularly, the present invention relates to a plastic oven bag. The present invention is particularly well suited for, but not limited to, food service applications such as food cooking applications.

BACKGROUND

[0003] Oven bags have been on the market for well over 30 years. The known bags have a plain, closed bottom end and sides and an open top end through which food may be placed into the bag. When a consumer uses the bag at home, the open top end is closed after the food has been placed within the bag. For example, separate, nylon pull ties are one conventional means for closing the bags. While these oven bags have been substantially unchanged for over 30 years, they have several shortcomings.

[0004] For example, it is difficult to load food into conventional oven bags. Currently, the consumer or homeowner has to hold the bag open with one hand and at the same time use his or her free hand to put the food into the oven bag. Accordingly, a mess may be created while loading food into the known bags.

[0005] Additionally, it is difficult to close conventional oven bags. As stated earlier, conventional bags are typically closed using nylon pull ties. Such pull ties may be
difficult to use for individuals who have arthritis or some other ailment with their hands. For example, it may be difficult to thread the pull tie through the hole and pull it closed, especially, with hands that may by greasy and dirty from handling the food being loaded into the bag.

[0006] Another issue with conventional oven bags is that the consumer is often instructed to poke holes into the bag using a knife, a fork or some other means in order to facilitate the venting of the bag during the cooking process. The reason this is done is to prevent the bag from blowing up like a balloon from the pressure developed during cooking of the food within the bag. This can be dangerous to the consumer and may cause the consumer to put larger venting holes than necessary into the bag.

[0007] Finally, it may be difficult for consumers to open conventional oven bags after the food is done cooking. Currently the consumer must use a knife, a pair of scissors or some other cutting means in order to gain entry into the bag to remove the cooked food contained therein. Cutting open of the oven bag can be dangerous to the consumer.

[0008] There is a need therefore, for an improved oven bag and method for making the improved oven bag that addresses one or more or all of the above-identified problems. In particular, there is a need for a simple, flexible, replaceable, and durable oven bag capable of allowing the consumer to use two hands to place the food inside the bag. There is also a need for an improved means to closing the oven bags. There is also a need for an improved way to vent the bags during cooking so that the consumers do not have to put the holes in the bags themselves. There is also a need for an easier way to gain access to the bags after they have been used. Improved oven bags solving one or more of the preceding problems would be an advance in the art.

SUMMARY

[0009] The present invention is directed to an improved oven bag and a method of making an improved oven bag. The present invention includes an oven bag comprising a bag-like body having a closed bottom end, one or more side walls extending upwardly from the closed bottom end, and an open top end. The closed bottom end may include a gusset which allows the bag to stand-up on its own thereby making it easier for the consumer to place a food product in the bag. The oven bag may include a closure system. The closure system may include a flap portion at the top opening of the bag and a high temperature adhesive (e.g., adhesive tape) may be disposed proximate the top opening. The flap portion and adhesive may work in conjunction to close and seal the top opening. For example, the
flap portion may be located on one side of the top opening and the bag may be sealed closed by folding the flap portion over the top opening and adhering the flap portion to the adhesive located on an opposite side of the top opening. Alternatively, the adhesive may be disposed on the flap portion. A venting system may also be provided in an upper portion of the oven bag. The improved oven bag may also include an easy opening tear-off system provided in an upper portion of the oven bag. For example, the venting system may include a series of perforation holes located beneath the closure system. The perforation holes may help with the venting of the oven bag during use and additionally may assist the consumer with easy opening of the bag, by for example tearing-off the portion of the bag above the perforation holes, after the food has been cooked in the bag.

[0010] The bottom of the bag is not limited to the gusset previously mentioned. For example, the bottom end of the bag may also have contoured bottom edges. The contoured bottom edges may be incorporated into the gusset of the bag. Preferably, each of the contoured edges may include a substantially straight tapered edge. The bottom of the bag may also be square or rectangular instead of gusseted.

[0011] As shown, the vent holes are preferably located proximate the top of the oven bag when the bag has been closed. Preferably, the vent holes are located proximate the adhesive and the position where the flap portion will be located when it is folded over the top opening, however, the vent holes are also located such that the vents are not covered by the flap portion. For example, the perforations / vent holes may be placed approximately 1/8 of an inch to approximately 1 and 1/8 inches below the adhesive tape. The vent holes may also be created by incorporating weak spots in the bag that will break open when the air in the bag pressurizes during cooking. The weak spots may be created by producing die lines in the film or by scoring the film with a knife or laser. In use, the film would split open at the weak spots creating vent holes when the bag experiences increased pressure during the cooking process.

[0012] Several different types of high temperature adhesives may be used, such as for example high temperature adhesive tapes, as part of the closure system. For example, the adhesive tape may be a double sided tissue tape, a double sided medical tape, or a transfer adhesive. Closure adhesives having different tackiness may be used, so that the bag either, cannot be re-opened or so that the bag can be re-opened after closing of the bag. The closure is not limited to adhesive tapes. For example, the closure may also be a high temperature Zip Lock closure or "slider" closure. Alternatively, the closure system may also be snap closures.
Additional features and advantages of the invention will be made apparent from the following detailed description of illustrative embodiments that proceeds with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

The foregoing and other aspects of the present invention will become apparent from the following detailed description of the invention when considered in conjunction with the accompanying drawings. For the purpose of illustrating the invention, there is shown in the drawings embodiments that are presently preferred, it being understood, however, that the invention is not limited to the specific instrumentalities disclosed. In the drawings:

FIG. 1 is a perspective view of an exemplary oven bag in accordance with an embodiment of the present invention;

FIG. 2 is a plan view of the oven bag of FIG. 1;

FIG. 3A is a perspective view of the oven bag of Fig. 1 fully opened to allow food to be placed in to the oven bag;

FIG. 3B is a top view of the oven bag of FIG. 3A;

FIG. 4 is a perspective view of the oven bag portraying the bag being sealed using an exemplary closure system; and

FIG. 5 is a perspective view of the oven bag of FIG. 1 with a sealed portion partially removed using an exemplary easy opening tear-off system.

DETAILED DESCRIPTION OF ILLUSTRATIVE EMBODIMENTS

The present invention is directed to an improved oven bag. The oven bag is particularly well suited for use in cooking applications and for use in high temperature cooking applications. The oven bag may include a bag-like body having a closed bottom end, one or more side walls extending upwardly from the closed bottom end, and an open top end. The closed bottom end may include a stand-up system such as a gusset. The oven bag may include a closure system to close and seal the open top end. The closure system may include a flap portion at the top opening of the bag and a high temperature adhesive disposed below the flap portion and on a side of the top opening opposite the flap portion. The flap portion may seal the bag by folding over the top opening and adhering the flap to the adhesive strip. A series of perforation holes may be formed in an upper portion of the bag. Preferably, the perforation holes are located in the upper portion of the bag proximate the
closure system, but is not covered by the closure system when the bag top opening is closed. The perforation holes may help with the venting of the oven bag during use and additionally may assist the consumer with easy opening of the bag after the food has been cooked in the bag. For example, the upper portion of the bag above the perforation holes may be torn-off creating a new opening for removal of food that has been cooked in the bag.

[0022] The oven bag, and its various features, is preferably suitable for high temperature applications. As used herein, high temperature means the oven bag is preferably made from materials suitable for use in high temperature applications of between about 210 °F and about 400 °F. Preferably, the improved high temperature oven bag can withstand temperatures up to about 400 °F.

[0023] FIGS. 1-5 depict an exemplary oven bag 100 in accordance with the present invention. As shown, the oven bag 100 may include a preformed bag-like body. The bag body may include a closed bottom end 101, one or more upwardly extending side walls 102 and an open top end 103. A closure system is provided to close and seal the open top end 103. The closure system may include a flap portion 110 and an adhesive 120. The flap portion 110 may extend from one edge of the open top end 103 of the bag. The high temperature adhesive 120, such as a high temperature adhesive tape, may be disposed below the top opening of the bag on an opposite side of the top opening. Alternatively, the adhesive 120 may be disposed on the flap portion 110 and the flap 110 and adhesive 120 may fold over the bag opening and adhere to the bag 100. A series of perforation holes 130 may also be formed in the bag 100 in an upper portion below the closure system.

[0024] FIG. 1 shows the oven bag 100 in use containing a food 200 within the bag 100 and having the bag 100 disposed on a tray or pan 300. As shown, the oven bag 100 forms a barrier between the food 200 contained within the bag 100 and the tray/pan 300 and/or oven (not shown).

[0025] The various Figures illustrate an exemplary oven bag 100 having various features that improve the performance of the oven bag 100. The features include one or more or all of the following features: a stand-up system for facilitating the load of food into the bag; a closure system for easy closure and sealing of the bag opening; a venting system for venting of gases and high pressure from within the bag during cooking; and an easy opening system to facilitate easy opening of the bag once the cooking process is complete so that the cooked food may be removed from the bag.

[0026] As shown in FIG. 2, the oven bag 100 may be substantially flat when in a folded state. This design and construction facilitates packaging, storage, and shipment of the
bag prior to use. As depicted, a gusseted portion 140 may fold within the oven bag 100 proximate the closed bottom end 101. When the bag is fully opened, as depicted in FIG. 3A, the gusseted portion 140 folds out and creates a base 141 that is substantially flat, so that a food product 200 may be placed therein. As shown in FIG. 3A, the base 141 may have a rectangular shape. When the gusseted bottom 140 is fully opened the bag may be capable of standing upright without the aid of the consumer.

[0027] FIG. 2 also shows an exemplary closure system having an adhesive strip 120 that is designed to corroborate with flap portion 110 to close and seal the bag 100. As shown, the adhesive strip 120 may include a non-adhesive covering, e.g., tape, 121 that covers the adhesive 120 during non-use and that may be removed during use just prior to the flap portion 110 being folded over the top opening 103 and onto the adhesive 120. The non-adhesive covering 121 may be wider than the adhesive strip 120. For example, the non-adhesive covering 121 may be about 1/16 of an inch wider than the adhesive strip 120. The increased width of the non-adhesive covering 121 in relation to the adhesive strip 120 may provide for ease in removing the non-adhesive covering 121 from the adhesive strip 120. Further, the non-adhesive covering 121 may be less prone to tear during removal from the adhesive strip 120. A suitable adhesive tape/non-adhesive covering combination may be supplied by Berry Plastics Corporation (tape # 7255280).

[0028] As shown in FIGs. 3A and 3B, when the gusseted bottom 140 is fully opened the food product may be placed therein. The gusseted closed bottom end 140 allows the oven bag to stand up-right on its own. As shown, a portion of the bottom portion of the bag may lay flat 141 which facilitates the stand-up feature and also tending to hold the bag open for placement of food 200 in the bag 100. Because the bag is capable of standing upright without the aid of the consumer, the consumer may use both hands 400 to place the food product 200 in the bag. The oven bag 100, however, is not limited to gusseted bottoms. For example the bottom may be square, or rectangular. Furthermore, the oven bag may be formed having a contoured bottom edge, thereby preventing food from becoming trapped in the bottom corners of the bag.

[0029] As shown in FIG. 4, the flap portion 110 may seal the bag by folding over the top opening 103 and adhering to the adhesive tape 120. As shown, the flap portion 110 may be formed on one side of the top opening 103 and the adhesive 120 may be disposed on an opposite side of the top opening 103. FIG. 4 shows the adhesive 120 partially exposed by the removal of a non-adhesive covering (e.g., tape) 121 that covers and protects the adhesive 120 prior to use and also shows the flap portion 110 partially folded over the opening and in
contact with the adhesive 120. Alternatively, the adhesive 120 may be disposed on the flap portion 110 and the flap 110 and adhesive 120 may fold over the bag opening and adhere to the bag 100.

[0030] The adhesive tape may be a double sided tape such as 3M983 made by 3M or 1731V made by Tyco Adhesives, for example. Additionally, the adhesive tapes may have different tackiness depending on the desires of the consumer. For example, an adhesive tape having a minimal tackiness may allow the consumer to reopen the bag after it has been sealed. On the other hand, an adhesive tape having a greater tackiness may ensure that the bag cannot be reopened. When a consumer wishes to close and seal the bag, the consumer may pull off the outer covering of the tape, thereby exposing an adhesive and allowing the flap portion to securely adhere to the bag. In certain embodiments, the adhesive may be approved by the United States Food and Drug Administration for use in the production of articles intended for use in the processing, handling and packaging of food products. For example, a suitable adhesive is supplied by Berry Plastics Corporation (tape # 7255280) or an equivalent thereof.

[0031] The oven bag closure system, however, is not limited to embodiments having a flap portion 110 combined with an adhesive 120. For example, the oven bag closure system may include a high temperature Zip Lock closure or "Slider" closure substantially near the top open end of the bag. Such a closure may be made out of a material such as nylon or polyester. In another example, the closure bag may include high temperature snap fasteners substantially near the top open end of the bag. Such snap fasteners may be welded on to a lip of the bag. The snaps may be made, using well known techniques in the art, such as injection molding the snaps out of nylon or polyester, for example.

[0032] As shown in the Figures, perforation holes 130 may be made in the bag 100 for automatic venting of the bag during cooking. Preferably, the perforation holes 130 include a series of perforation holes 130 that extend along the length of the bag just below a closed portion 150 of the bag. For example, in embodiments where the oven bag 100 includes the high temperature adhesive tape 120, the perforation holes 130 may be located just below the adhesive tape 120 - as depicted in the Figures. In other embodiments, perforation holes may have a 3/16 of an inch diameter.

[0033] Preferably the perforations 130 may be about one eighth of an inch to about one and one half inch below the adhesive tape 120. The placement of the perforations 130 is such that the perforations 130 are not covered when the top opening 103 is closed. Placement of the perforations 130 a safe distance below the adhesive 120 provides a safeguard from
accidental sealing off the perforations 130. In one embodiment, the perforation holes 130 may include slits having a length of about one eighth inch to about one quarter inch. In another embodiment, the perforation holes 130 may include about one eighth inch to about one quarter inch diameter holes. In another embodiment, the perforation holes 130 are on both side walls 102 of the bag 100. This embodiment ensures that even if the perforation holes 130 on one side wall 130 are covered by the flap 110, the perforation holes 130 on the other side 130 will remain unobstructed.

[0034] The perforations 130 may be advantageous for several reasons. For example, the perforations 130 may serve as vents during cooking. By having vents built into the oven bags 100, the bag 100 will automatically vent during cooking and consumers will no longer be required to form vent holes themselves with a sharp object, such as a knife or fork. Additionally, the perforations 130 may act as an easy opening system (i.e., a tear off feature) for the bag 100. As shown in FIG. 5, after the bag 100 has been sealed, the top of the bag 160 may be ripped off allowing the consumer to gain access to the food product 200 inside the bag 100. When the bag 100 has been used in an oven, the bag may become moist and cooked making it even easier for the consumer to tear off the top portion of the bag 160.

[0035] The oven bag material may be suitable for continuous service under various conditions and may have the following characteristics: suitable for temperature conditions ranging from about 210°F to about 400°F; has a good thermal heat transfer rate; has a tensile strength capable of withstanding approximately 13,000 psi without orientation; has a tear strength capable of holding up to about 50 grams/liter; has a tabor strength capable of sustaining about 1000 cycles tested with a load of about 500 grams; has a chemical resistance to most chemicals, such as mineral acids, phenols and concentrated formic acid; has a bacterial and mold resistance making it rot proof and resistant to molds and impermeable to micro-organisms; acts as an odor barrier to most odors; has a grease and oil resistance having an oil-barrier properties effective against animal, vegetable, and mineral oils and fats; allows some moisture-vapor transmission at raised temperatures; is gas impermeable which makes the bag well suited for packaging under nitrogen, carbon dioxide, or vacuum, and is resistant to oxygen permeation which reduces fogging in frozen foods and may help extend shelf-life; is non-scalping (e.g., no flavor loss); and will not block (e.g., will not stick together).

[0036] The oven bag may be made from a durable and high temperature plastic material, nylon film, such as a nylon resin, polyester film, polyester elastomer film, or a combination thereof. For example, the bag may be made from a high temperature nylon or polyester, such as a material from the polyamide family including nylon 3, 4, 6, 9, 11, 12, and
An exemplary nylon resin material that is suitable for use with the present invention may include MONOLYN™ material manufactured by M&Q Plastic Products. The thickness of the liner may range between, for example, 0.8 mils and 1.0 mils.

[0037] In certain embodiments, the oven bag material provides oil and grease resistance and is manufactured from resins that meet all requirements of the United States Food and Drug Administration regulations 21 CFR 177.1500 (a)(l)(6), (b)(l)(6.1) and 21 CFR 178.2010 to produce articles intended for use in the processing, handling and packaging of food products. In addition, embodiments of the liner material may have the following properties as listed in Table 1.

<table>
<thead>
<tr>
<th>Properties</th>
<th>Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thickness</td>
<td>.75 to 3 mils</td>
</tr>
<tr>
<td>Area Yield</td>
<td>27,240 in²/lb</td>
</tr>
<tr>
<td>Haze</td>
<td>10.4 to 12.6%</td>
</tr>
<tr>
<td>Gloss, 20 Degree</td>
<td>51.3 to 61.8</td>
</tr>
<tr>
<td>Tensile Strength</td>
<td>15,000 to 19,000 psi</td>
</tr>
<tr>
<td>Elongation</td>
<td>315 to 400%</td>
</tr>
<tr>
<td>Tear</td>
<td>470 to 540 grams/mil</td>
</tr>
<tr>
<td>Puncture Strength</td>
<td>340 to 470 grams</td>
</tr>
<tr>
<td>Coefficient of Friction (film-film, Kinetic)</td>
<td>0.20 to 0.45</td>
</tr>
<tr>
<td>Coefficient of Friction (film-metal, Kinetic)</td>
<td>0.30 to 0.45</td>
</tr>
<tr>
<td>Oxygen Transmission Rates (cc/100 in²/day):</td>
<td></td>
</tr>
<tr>
<td>0% R.H., 73°F</td>
<td>2.80</td>
</tr>
<tr>
<td>50% R.H., 73°F</td>
<td>1.90</td>
</tr>
<tr>
<td>90% R.H., 73°F</td>
<td>4.40</td>
</tr>
<tr>
<td>100% R.H., 73°F</td>
<td>11.5</td>
</tr>
<tr>
<td>Water Vapor Transmission Rate (grams/100 in²/day):</td>
<td></td>
</tr>
<tr>
<td>100% R.H., 100°F</td>
<td>32.0</td>
</tr>
</tbody>
</table>

[0038] Although illustrated and described herein with reference to certain specific embodiments, it will be understood by those skilled in the art that the invention is not limited to the embodiments specifically disclosed herein. Those skilled in the art also will appreciate that many other variations for the specific embodiments described herein are intended to be within the scope of the invention as defined by the following claims.
Claimed:

1. An oven bag suitable for high temperature processes that occur at temperatures greater than about 210°F comprising:

   a bag-like body having

   a closed bottom end,

   one or more side walls extending upwardly from the closed bottom end, and

   an open top end; and

   a closure system,

   wherein the closed bottom end comprises a stand-up system.

2. The oven bag of claim 1 wherein the closure system includes a flap portion at the open top end of the bag and a high temperature adhesive disposed proximate the open top end.

3. The oven bag of claim 2 wherein the flap portion is located on one side of the top opening and the adhesive is located on an opposite side of the top opening.

4. The oven bag of claim 2 wherein the adhesive is disposed on the flap portion.

5. The oven bag of claim 1 wherein the stand-up system comprises a gusset.

6. The oven bag of claim 1 wherein the closed bottom end of the oven bag comprises contoured bottom edges.

7. The oven bag of claim 1 wherein the closed bottom end of the oven bag is square or rectangular.

8. The oven bag of claim 1 further comprising a venting system.
9. The oven bag of claim 1 wherein the venting system is in the upper portion of the oven bag.

10. The oven bag of claim 8 wherein the venting system comprises a series of perforation holes located beneath the closure system.

11. The oven bag of claim 8 wherein the venting system is located proximate the adhesive and the folded over flap portion wherein the venting system is not covered by the flap portion.

12. The oven bag of claim 8 wherein the venting system is placed approximately 1/8 of an inch to approximately 1 and 1/2 inches below the high temperature adhesive.

13. The oven bag of claim 1 wherein the venting system comprises weak spots that can open when air in the cooking bag pressurizes during cooking.

14. The oven bag of claim 1 further comprising an easy opening tear-off system provided in an upper portion of the oven bag.

15. The oven bag of claim 14 wherein the easy opening tear-off system comprises a series of perforation holes located beneath the closure system.

16. The oven bag of claim 2 wherein the adhesive is an adhesive tape.

17. The oven bag of claim 16 wherein the adhesive tape is a double sided tissue tape, a double sided medical tape, or a transfer adhesive.

18. The oven bag of claim 1 wherein the oven bag cannot be opened and resealed after closing of the oven bag.

19. The oven bag of claim 1 wherein the oven bag can be opened and resealed after closing of the oven bag.

20. The oven bag of claim 1 wherein the closure system is a high temperature zip lock closure, slider closure, or snap closure.
21. The oven bag of claim 1 wherein the oven bag is comprised of a material approved by the United States Food and Drug Administration for use in the production of articles intended for use in the processing, handling and packaging of food products.

22. An oven bag suitable for high temperature processes that occur at temperatures greater than about 210°F comprising:

   a bag-like body having

   a gusseted closed bottom end having a rectangular flat portion,

   one or more side walls extending upwardly from the closed bottom end, and

   an open top end;

   a closure system comprising:

   flap portion at the open top end of the bag, and

   a high temperature adhesive disposed proximate the open top end; and

   a venting system placed approximately 1/8 of an inch to approximately 1 and 1/4 inches below the high temperature adhesive and comprising vent holes having a diameter of about 3/16 of an inch.
### A CLASSIFICATION OF SUBJECT MATTER

- **IPC(8)** - B65D 81/34 (2008.04)
- **USPC** - 426/113

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)

- **IPC (8)** - B65D 81/34 (2008.04)
- **USPC** - 426/113

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

- **USPC** - 383/101.103,104.11 426/107.118

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

- PUBWEST (PGPB.USPT.USOC.EPAB.JPAB) Terms - oven cook bag adhesive gusset perforate flap stand-up
- Google - high temperature stand-up oven bag, stand-up oven bag adhesive, stand-up oven bag perforation, stand-up oven bag flap adhesive seal oven bag gusset, adhesive seal oven bag gusset flap perforation

### C DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2-4, 6 11-12, 16-17, 22</td>
</tr>
</tbody>
</table>

### D Further documents are listed in the continuation of Box C

- **"A"** document defining the general state of the art which is not considered to be of particular relevance
- **"E"** earlier application or patent published on or after the international filing date
- **"L"** document which may throw doubts on patentability claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- **"O"** document referring to an oral disclosure, use, exhibition or other means
- **"P"** document published prior to the international filing date but later than the priority date claimed

**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

**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

**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

**&"** document member of the same patent family

Date of the actual completion of the international search: 06 August 2008 (06 08 2008)

Date of mailing of the international search report: **18 AUG 2008**

Name and mailing address of the ISA/US

- **Mail Stop PCT, Attn ISA/US, Commissioner for Patents**
- P. O. Box 1450, Alexandria, Virginia 22313-1450
- Facsimile No 571-273-3201

Authorized officer: Lee W Young

PCT/ISA/210 (second sheet) (April 2007)