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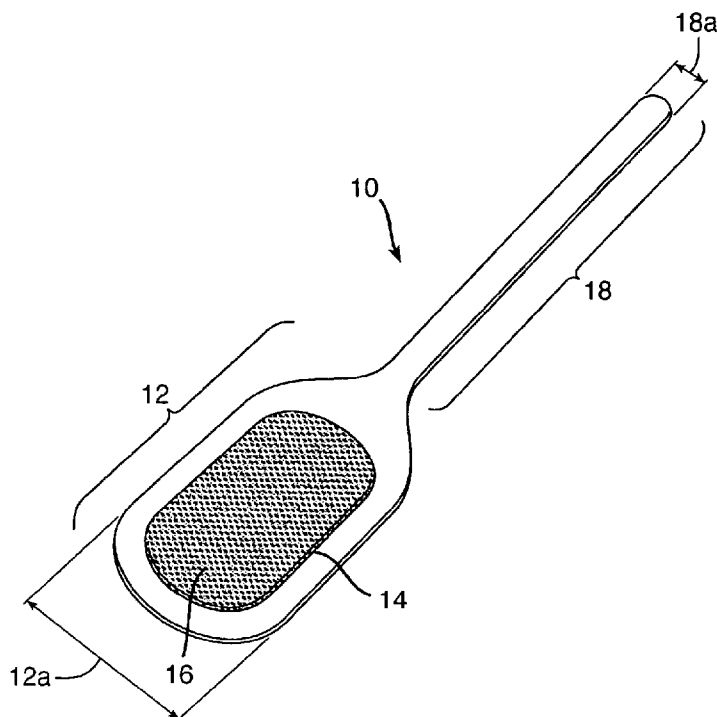
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[Continued on next page]

(54) Title: IMPLEMENT FOR MAKING A BEVERAGE BY INFUSION



(57) Abstract: An implement for making a beverage by infusion is described. The implement has an encapsulated precursor portion (12) and a handle portion (18) and can be used to make beverages with hot or cold solvents. The area of the implement that contains the beverage precursor has a defined size to maximize infusion in five (5) minutes or less.

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IMPLEMENT FOR MAKING A BEVERAGE BY INFUSION

5 TECHNICAL FIELD OF THE INVENTION

The present invention is directed to an implement for making a beverage by infusion and a method for making the beverage. More particularly, the invention is directed to an implement for making a beverage like fruit juice, tea, coffee, hot chocolate and a
10 drinkable soup. The invention is most particularly desirable for making tea, especially hot tea. The implement comprises a beverage precursor, like tea leaf, that is encapsulated in a solvent permeable or soluble material whereby the encapsulated beverage precursor is associated with the implement at a point on the implement that is sufficiently removed from its handle. The implement for making a beverage by
15 infusion provides for a convenient and enjoyable means for making a beverage.

BACKGROUND OF THE INVENTION

20 Next to water, tea is the most popular beverage consumed by man. A variety of mechanisms exist to make tea, and these include tea brewing with an automatic brewing machine, infusion of tea leaf in a tea bag with hot or cold water and tea preparation with water and a powdered concentrate. Such mechanisms, while well known, are not always perceived as being convenient, and typically are not perceived
25 as being very posh or "shi shi" to young adults that frequent beverage houses, like coffee and tea cafes.

There is an increasing interest to develop a convenient mechanism for making beverages, especially beverages like tea that are excellent sources of antioxidants.
30 This invention, therefore, is directed to an implement for making a beverage by infusion. The invention is particularly directed to an implement for making a beverage like fruit juice, tea, coffee, hot chocolate and a drinkable soup as well as sauces or marinades. The implement comprises a beverage precursor, like tea leaf, that is encapsulated in a solvent permeable or soluble material whereby the encapsulated

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beverage precursor is associated with the implement at a point on the implement that is sufficiently removed from its handle.

5 ADDITIONAL INFORMATION

Efforts have been disclosed for making beverages. In U.S. Application No. 2003/0226448 A1, a beverage brewing stirrer with a container having holes is described. The stirrer can be used to infuse or steep a beverage substance like tea.

10

Other efforts have been disclosed for making beverages. In European Patent No. EP 0 722 410 B1, an infusion package having at least three sides and a drawstring is described.

15 Still other efforts have been disclosed for making beverages. In U.S. Patent No. 6,726,946 B1, a multi-purpose beverage infuser is described.

None of the additional information above describes an implement for making a beverage by infusion wherein a beverage precursor is encapsulated in a solvent permeable or soluble material and associated with the implement at a point
20 sufficiently removed from its handle.

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SUMMARY OF THE INVENTION

In a first aspect, the present invention is directed to an implement for making a beverage by infusion comprising:

- 5 (a) a body; and
 (b) an encapsulated beverage precursor,

the body comprising a first portion that is associated with the encapsulated beverage precursor, the first portion being sufficiently removed from a second portion on the
10 body, the second portion acting as a handle on the implement.

In a second aspect, the present invention is directed to a method for making a beverage with the implement for making a beverage by infusion of the first aspect of this invention.

15

In a third aspect, the present invention is directed to a beverage made via the method of the second aspect of this invention.

As used herein, infusion is meant to include soaking, steeping or dissolving within a
20 solvent like hot water. Precursor, as used herein, means a material that can produce a beverage when contacted with a solvent, like leaf (especially, tea leaf), powders, crystals, agglomerates and ground bean. Body as used herein means a tangible item or frame made from a material that will not warp or disintegrate when placed in a solvent like boiling water, and including but not limited to, wood, plastic, wax, coated
25 paperboard or metal. Encapsulated, as used herein, means surrounded by or encased within a solvent permeable or solvent soluble material above and below a center plane of the implement. Associated with includes, for example, connected or attached to. Sufficiently removed means at a point that when held by a consumer's hand, it is far enough from the encapsulated beverage precursor to prevent the
30 consumer's hand from contacting solvent when the encapsulated beverage is submerged in the solvent. Beverage, as used herein means a liquid consumable by humans, like tea for drinking as well as liquids to cook with such as sauces and marinades.

BRIEF DESCRIPTION OF THE DRAWINGS

5 The subject matter which is regarded as the invention is particularly pointed out and distinctly claimed in the concluding portion of the specification. The invention, however, may be best understood by reference to the following description taken in conjunction with the accompanying drawing figures in which:

10 Figure 1 is an illustrative perspective view of the implement for making a beverage by infusion of this invention.

Figure 2 is an illustrative right side view of the implement for making a beverage by infusion of this invention, the illustrative left side view being a mirror image thereof.

15

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

20 The only limitation with respect to the type of beverage precursor that may be used in this invention is that the beverage precursor is one which can yield (upon contact with a solvent) a beverage suitable for human consumption. Illustrative classes of the types of beverage precursors that may be used in this invention include leaf, crystal, powder, liquid, agglomerate and ground bean. Preferred leaf suitable for use in this invention is tea leaf. Preferred crystals and powders and agglomerates include those which can be used to make coffee (including espresso), hot chocolate, tea, sauces, 25 marinades and fruit juice, like lemonade. The ground bean that may be used in this invention is preferably ground coffee bean, and when the beverage precursor is a liquid (including a gel) the encapsulating material should be one which is hot solvent soluble.

30 It is particularly noted that the tea leaf suitable for use in this invention can be that which is useful for hot or cold brewing, and such tea leaf can be harvested from the *Camellia sinensis* plant and includes black, green, white and oolong tea, including mixtures thereof. It is also within the scope of this invention to use herb tea (e.g., hibiscus, lemon grass, fennel, licorice, chicory, malted barley or mixtures thereof) with

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or in lieu of tea leaf harvested from the *Camellia sinensis* plant. Illustrative tea leaf which may be used for hot brewing is described in European Patent No. EP 1202635 B1 and illustrative tea leaf suitable for cold brew is described in U.S. Patent No.

6,780,454, the disclosures of which are incorporated herein by reference. The most preferred beverage precursor suitable for use in this invention is tea powder or tea leaf, especially black tea leaf. In an especially preferred embodiment, the tea leaf is of superior quality and provided from suppliers like Unilever Foods under the Lipton® Tea Brand.

10 In addition to beverage precursor, it is also within the scope of this invention to combine, with the beverage precursor, optional ingredients like sweeteners (natural or artificial); vitamins and supplements like calcium, zinc, iron, vitamin C, B vitamins or mixtures thereof; natural and artificial flavors like, for example, lemon and apple flavors and flavors provided as flavor granules; acidulants like citric acid, malic acid or mixtures thereof and spices like cinnamon, chai, ginger, cardamon, or mixtures thereof. Yet another optional ingredient suitable for use in this invention is a whitener like a fat comprising or non-fat powdered creamer or milk. Such whiteners typically have a mean diameter particle size distribution ranging from about 0.1 microns to about 10 microns and are commercially available from suppliers like Rich Products Corporation.

As to the beverage precursor, the implement for making a beverage by infusion typically comprises from about 1.5 to about 10 grams of beverage precursor. When an individual serving is desired (e.g., about 0.25 liters), such implements preferably comprise from about 1.5 to about 4, and most preferably, from about 1.85 to less than about 3.5 grams of beverage precursor, including all ranges subsumed therein. When a family size serving is desired (e.g., about 1 liter), such implements typically comprise from more than about 3.5 to about 10 grams, and preferably, from about 6.5 to about 8.5 grams, including all ranges subsumed therein.

30 Regarding the optional additives, such additives typically are added and thoroughly mixed with the beverage precursor whereby the weight percent of optional additives employed often does not exceed about 15% by weight of the total weight of beverage precursor plus optional additive.

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When tea leaf is the beverage precursor of choice, it typically has a particle size distribution from about 0.3 mm to about 0.85 mm, and preferably, from about 0.35 mm to about 0.7 mm, including all ranges subsumed therein.

5

Turning to Figure 1, shown is an illustrative implement for making a beverage by infusion 10. The implement 10 has a first portion 12 that is associated with encapsulated beverage precursor 14 that is encapsulated in a material 16 that is either solvent permeable or soluble (e.g., water permeable or soluble). The material 16 is solvent soluble when the beverage precursor 14 is solvent soluble and is solvent permeable when beverage precursor 14 is not solvent soluble (e.g., coffee grounds or tea leaf) but suitable to be infused with a solvent, not shown, like hot water. The implement for making a beverage by infusion 10 has a second portion 18 that is sufficiently removed from the first portion 12. The second portion 18 acts as a handle for maneuvering (like stirring) the implement 10 into, for example, a solvent filled mug or pitcher (not shown).

When the material 16 is solvent permeable, such material may be woven or non-woven. The material 16, when solvent permeable, is limited only to the extent that it may be used for making a beverage suitable for human consumption. The weight and/or pore size of the material 16 selected should allow for good solvent flow (i.e., infusion) through the implement 10, but not allow beverage precursor 14 and any optional additive (not shown) employed to fall out of the implement and into the solvent of the desired beverage to be made. The woven or non-woven material suitable for use in this invention is typically made commercially available from suppliers like Ahlstrom Fiber Composites and Glatfelter.

When the material 16 is solvent soluble, it typically is prepared with, for example, gelatin, vegetable gum, starch, carboxymethyl cellulose, albumin, carrageenan or a combination thereof. The solvent soluble encapsulant may be made by any conventional technique, and techniques that include spray drying and air suspension are often preferred.

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Turning to Figure 2, shown is an illustrative right side view of the implement for making a beverage by infusion 10 of this invention. While the implement for making a beverage by infusion 10 is not limited to any particular shape, spoon-like shapes such as the ones shown in Figures 1 and 2 are often preferred. The body (or frame) 20 of the implement 10 is typically made of wood, plastic or metal and may be a single layer or a plurality of layers like a series of laminates (not shown). Preferably, the thickness of the body, regardless of how many layers are employed, is from about 1 to about 3 mm. Polyalkylenes like polyethylene and polypropylene (and copolymers thereof as well as other commonly known resins like polyethylene terephthalate, polycarbonates, polyvinyl chloride and epoxy resins) are the often preferred polymers used to make the implement 10 of this invention. Often, the implement 10 is from about 7 cm to about 40 cm in length (i.e., the sum of the first portion 12 and second portion 18). When the implement 10 is for an individual serving, it typically is less than about 25 cm long. When the implement 10 is of family size (e.g., for a 1 liter serving), it typically is longer than about 25 cm.

In an especially preferred embodiment, first portion 12 makes up from about 25 to 50% of the total length of the implement 10.

In yet another especially preferred embodiment, the weight ratio of beverage precursor 14 below the center plane of the implement 22 (represented as 14a) to beverage precursor 14 above the center plane of the implement 22 (represented as 14b) is from about 20 to 80 to about 80 to 20, and preferably, from about 30 to 70 to about 70 to 30, and most preferably, from about 40 to 60 to about 60 to 40, including all ratios subsumed therein. Therefore, the implement for making a beverage by infusion 10 of this invention may be infusible via its top and bottom.

In still another preferred embodiment, the width of the first portion 12 (represented as 12a in Figure 1) is such that the combined surface area of material 16 above and below the center plane of the implement 22 has a value X in square centimeters and the weight of beverage precursor used has a value Y in grams where:

$$X = \frac{Y}{D}$$

and D is an integer from about 20 to about 40. The width of second portion 18

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(represented as 18a in Figure 1) is equal to but preferably less than the width of the first portion 12a.

When making the implement of this invention, the body 20 may be cut or molded, and the encapsulated beverage precursor may become associated with the body 20 of the implement 10 by employing conventional techniques that include heat bonding, "sandwiching" between laminates, crimping and attaching with an adhesive or adhesive containing laminant. Regardless of the orientation of the implement 10, beverage precursor 14 should preferably not be able to move or migrate out of first portion 12 and into second portion 18.

When making the desired beverage, the consumer should preferably grasp the implement 10 at a point on second portion 18 and agitate (for example, stir) the implement 10 in the desired solvent which is hot, cold, or in the process of being heated where cold is defined to mean above freezing but less than room temperature and hot is defined to mean greater than room temperature to about boiling. Often, the preferred solvent used in this invention is a fruit juice, broth or water, with water being especially preferred. Moreover, when making the desired beverage of this invention, it is preferred that infusion be complete in no more than five (5) minutes, and preferably, in from about 2 to about 3.5 minutes.

There is essentially no limitation with respect to how the implements for making a beverage by infusion 10 are packaged, as long as they are not destroyed during shipping. Typically, however, they are packed in boxes or bags. For food service applications, they may be sold attached to a single serving disposable cup.

The following Example is provided to illustrate and facilitate an understanding of the present invention. The Example is not intended to limit the scope of the claims.

30 Example 1

Implements for making beverages by infusion were made by cutting plastic bodies having shapes similar to the one illustrated in Figure 1. Approximately 2.25 gram piles of Lipton Smooth blend black tea leaf were prepared and encapsulated in non-

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woven and food grade material (water permeable). One encapsulated tea leaf pile was attached to each body by placing each encapsulated tea leaf pile onto the body (i.e., at the first portion) and "sandwiching"/connecting the same onto the body with a laminate having an adhesive on one side and a shape identical to that of the plastic
5 body. The resulting implement for making a beverage by infusion 10 had about an equal amount of tea (precursor) above and below its center plane and the total area of the material (top and bottom) was about 67 square centimeters.

Example 2

10

The implements made in Example 1 were stirred in cups having eight (8) ounces of hot (about boiling) water for about two (2) minutes then removed. The resulting tea beverages had good taste and appearance characteristics and were enjoyable to make.

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CLAIMS

1. An implement for making a beverage by infusion comprising:

- 5 (a) a body; and
(b) an encapsulated beverage precursor,

the body comprising a first portion that is associated with the encapsulated beverage precursor, the first portion being sufficiently removed from a second
10 portion on the body, the second portion acting as a handle on the implement

wherein the encapsulated beverage precursor is encapsulated with a material that is solvent soluble or solvent permeable and the material has a surface area in square centimeters equal to X and the beverage precursor has a weight in
15 grams equal to Y where:

$$X = \frac{Y}{D}$$

20 and further where D is an integer from 20 to 40.

2. The implement according to claim 1 wherein the body comprises plastic, wood or metal.

25

3. The implement according to claim 1 or claim 2 wherein the beverage precursor is liquid, powder, crystal, leaf, agglomerate, ground bean or a mixture thereof.

4. The implement according to any one of the preceding claims wherein the
30 beverage precursor is a precursor for coffee, espresso, tea, fruit juice, hot chocolate, a sauce or a marinade.

5. The implement according to claim 4 wherein the beverage precursor is tea leaf for making black, white, green or oolong tea, or a precursor for making herbal
35 tea or lemonade.

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6. The implement according to any one of the preceding claims wherein the beverage precursor is combined with vitamins, supplements, natural or artificial flavor, sweetener, spice, whitener or a mixture thereof.
- 5 7. The implement according to any one of the preceding claims wherein the material is a woven or non-woven material or one which is soluble in water and comprising gelatin, vegetable gum, starch, carboxymethyl cellulose, albumin, carrageenan or a mixture thereof.
- 10 8. The implement according to any one of the preceding claims wherein 20 to 80 percent by weight of encapsulated beverage precursor is below a center plane of the implement and 80 to 20 percent by weight of the beverage precursor is above the center plane of the implement.
- 15 9. The implement according to any one of the preceding claims wherein the beverage precursor comprises herbal tea.
10. A method for making a beverage comprising the steps of:
 - (a) contacting the implement for making a beverage by infusion of any one of
 - 20 claims 1 to 9 with a solvent;
 - (b) agitating the implement in the solvent; and
 - (c) recovering the beverage.
11. The method according to claim 10 wherein the solvent is water, fruit juice or
- 25 broth.
12. The method according to claim 11 wherein the solvent is water and the beverage is tea.
- 30 13. The method according to claim 10 wherein the beverage is tea or herbal tea.
14. The beverage made according to the method of any one of claims 10 to 13.

1/2

Fig.1.

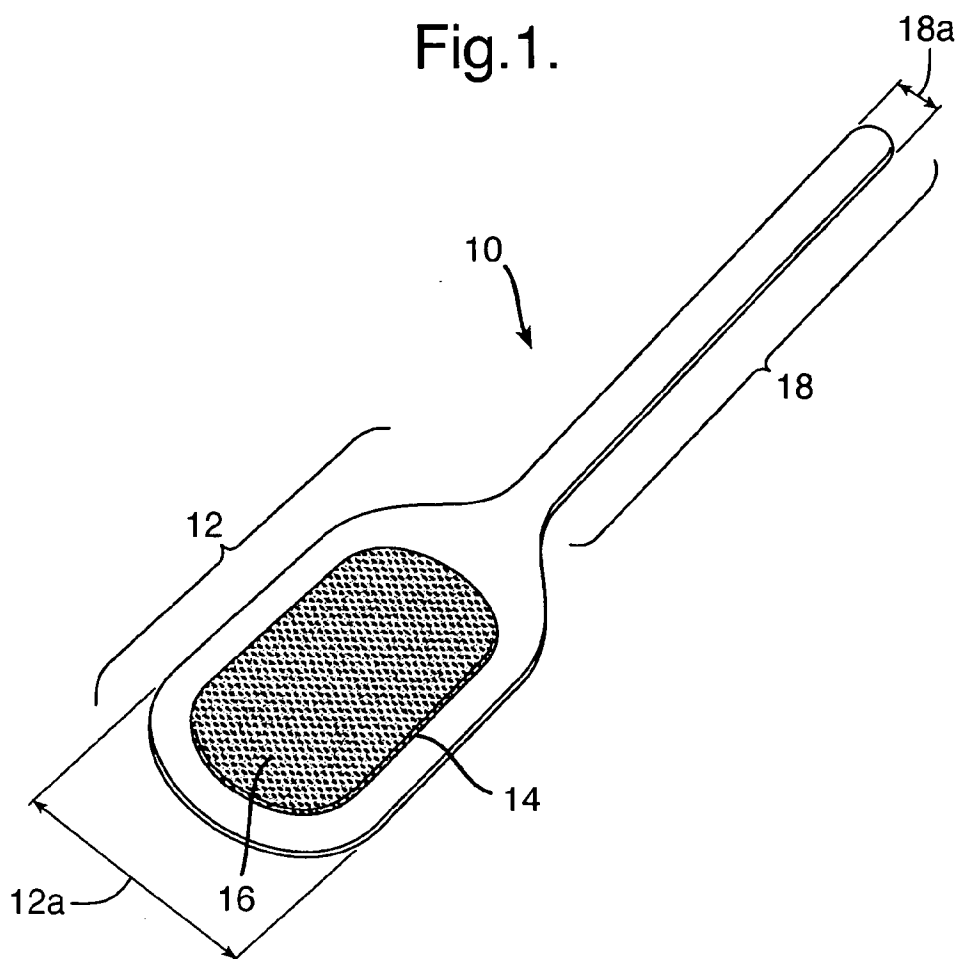
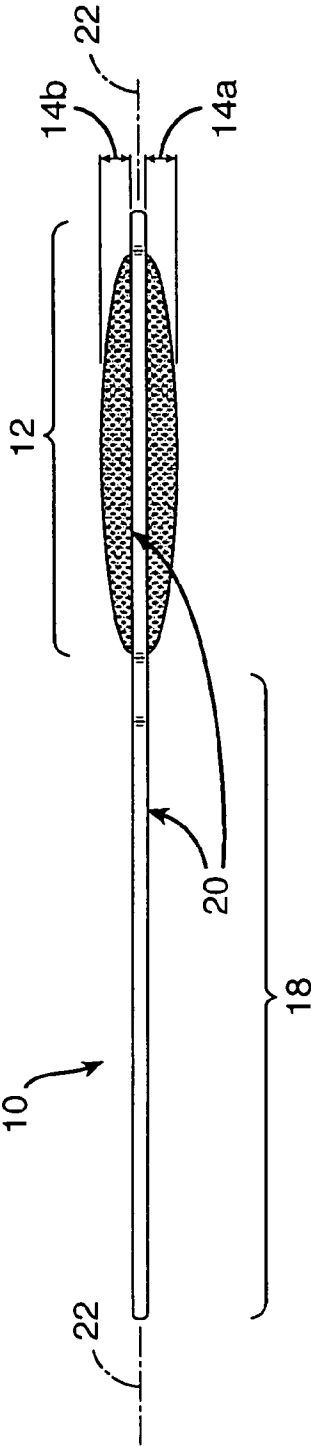


Fig.2.



INTERNATIONAL SEARCH REPORT

International application No
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INV. A47G19/16

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)
A47G A47J

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 practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2005/013775 A (TEA SOLUTIONS LIMITED; DICK-READ, GILES) 17 February 2005 (2005-02-17) page 10, line 8 - page 12, line 6 page 14 page 20, lines 10-14 page 23, lines 1-15 page 24, line 21 - page 25, line 6 page 25, lines 13-18 figures 1-3,8 -----	1-14

☐ 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
- *E* earlier document but published on or after the international filing date
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- *P* document published prior to the international filing date but later than the priority date claimed

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- *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.
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INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report		Publication date		Patent family member(s)	Publication date
WO 2005013775	A	17-02-2005	AU	2003255744 A1	25-02-2005