

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:
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PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Applicant's or agent's file reference 010782PC/CMP		Date of mailing (day/month/year) 03 JUL 2008
International application No. PCT/US07/70243		International filing date (day/month/year) 01 June 2007 (01.06.2007)
International Patent Classification (IPC) or both national classification and IPC IPC: B23B 31/30 (2006.01) USPC: 279/3;451/288		Priority date (day/month/year) 02 June 2006 (02.06.2006)
Applicant APPLIED MATERIALS, INC.		

1. This opinion contains indications relating to the following items:

- | | | |
|-------------------------------------|--------------|--|
| <input checked="" type="checkbox"/> | Box No. I | Basis of the opinion |
| <input type="checkbox"/> | Box No. II | Priority |
| <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input type="checkbox"/> | Box No. IV | Lack of unity of invention |
| <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/> | Box No. VI | Certain documents cited |
| <input type="checkbox"/> | Box No. VII | Certain defects in the international application |
| <input type="checkbox"/> | Box No. VIII | Certain observations on the international application |



2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

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	Date of completion of this opinion 01 June 2008 (01.06.2008)	Authorized officer David Bryant  Telephone No. 571-272-3700 
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International application No.

PCT/US07/70243

Box No. I Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of:
- the international application in the language in which it was filed
- a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).
2. This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))
3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of:
- a. type of material
- a sequence listing
- table(s) related to the sequence listing
- b. format of material
- on paper
- in electronic form
- c. time of filing/furnishing
- contained in the international application as filed.
- filed together with the international application in electronic form.
- furnished subsequently to this Authority for the purposes of search.
4. In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

WRITTEN OPINION OF THE
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PCT/US07/70243**Box No. V Reasoned statement under Rule 43 bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims <u>8, 9, and 19</u>	YES
	Claims <u>1-7, 10-18, and 20</u>	NO
Inventive step (IS)	Claims <u>8, 9, and 19</u>	YES
	Claims <u>1-7, 10-18, and 20</u>	NO
Industrial applicability (IA)	Claims <u>1-20</u>	YES
	Claims <u>NONE</u>	NO

2. Citations and explanations:

Please See Continuation Sheet

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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

V. 2. Citations and Explanations:

Claims 1-5 lack novelty under PCT Article 33(2) as being anticipated by Mitchel et al. (U.S. Patent 6,056,632).

Regarding claim 1, Mitchel et al. discloses an apparatus 100 for supporting a substrate 150, comprising: a base member 110 having a bottom surface 118 configured to provide support to the substrate and a plurality of recesses (164-170) formed therein, the plurality of recesses open to the bottom surface; and a flexible membrane 122 mounted on the base member covering the bottom surface, wherein a center chamber 120 is formed between at least a portion of the bottom surface of the base member and the flexible membrane, the center chamber may be deflated by a vacuum source (through fluid passages 112), and an outer surface of the flexible membrane is configured to receive the substrate thereon.

Regarding claim 2, Mitchel et al. discloses wherein an edge chamber 154 is formed between the flexible membrane and an edge of the base member (see figure 4).

Regarding claim 3, Mitchel et al. discloses wherein the edge chamber may be inflated and deflated independently from the center chamber (using tubing 107a/b and apertures 188).

Regarding claim 4, Mitchel et al. discloses wherein the center chamber 120 may be inflated or deflated by pumping in or out a control gas through a passage 112 formed in the base member.

Regarding claim 5, Mitchel et al. discloses wherein the base member is vertically movable (with carrier head 100, see column 8, lines 53-55).

Claims 6, 7, 10-18, and 20 lack novelty under PCT Article 33(2) as being anticipated by Bottema et al. (U.S. Patent Publication 2004/0266324).

Regarding claim 6, Bottema et al. discloses a method for loading a substrate 76, comprising: providing a base member 14/40 configured to provide support to the substrate; providing a flexible membrane 22 mounted on the base member, wherein the flexible membrane forms a center chamber (not labeled, see figure 3) with the base member; pushing the substrate against flexible membrane to assist venting of the center chamber (see paragraph [0032]); and vacuum chucking the substrate to the flexible membrane by pumping out the center chamber (see paragraph [0032]).

Regarding claim 7, Bottema et al. discloses wherein the flexible membrane forms an edge chamber around the base member (such as the one formed by the outermost perforation formed in plate 40, as seen in figure 3).

Regarding claim 10, Bottema et al. discloses prior to pushing the substrate, venting the center chamber (see paragraph [0032]).

Regarding claim 11, Bottema et al. discloses wherein pushing the substrate is performed using a controlled force (using the loading mechanism until the pressure sensor indicates the presence of the substrate).

Regarding claim 12, Bottema et al. discloses wherein pushing the substrate against the flexible membrane comprises pushing the

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substrate until the flexible membrane is in contact with a bottom surface of the base member.

Regarding claim 13, Bottema et al. discloses further comprising providing a substrate support (loading mechanism) configured to push the substrate against the flexible membrane.

Regarding claim 14, Bottema et al. discloses a method for vacuum chucking a substrate 76, comprising: venting a center chamber (not labeled, see figure 3) of a flexible membrane 22 configured for mounting the substrate; moving the substrate such that a backside of the substrate is in full contact with the flexible membrane (see paragraph [0032]); and vacuuming the center chamber to vacuum chuck the backside of the substrate to the flexible membrane (see paragraph [0032]).

Regarding claim 15, Bottema et al. discloses positioning a substrate 76 on a substrate support (loading mechanism) in a face down position.

Regarding claim 16, Bottema et al. discloses wherein moving the substrate comprises: raising the substrate towards the flexible membrane; and pushing the substrate against the flexible membrane to force venting the center chamber (see paragraph [0032]).

Regarding claim 17, Bottema et al. discloses wherein raising and pushing the substrate is performed by the substrate support.

Regarding claim 18, Bottema et al. discloses venting an edge chamber (such as the one formed by the outermost perforation formed in plate 40 when the membrane 22 is up against it, as seen in figure 3) of the flexible membrane while venting the center chamber.

Regarding claim 20, Bottema et al. discloses further comprising stopping the substrate when a predetermined force is applied to the substrate by the flexible membrane (using the loading mechanism until the pressure sensor indicates the presence of the substrate).

Claims 8, 9, and 19 meet the criteria set out in PCT Article 33(2)-(3), because the prior art does not teach or fairly suggest "prior to vacuum chucking the substrate, inflating the edge chamber to form a seal between the substrate and the flexible membrane".

Claims 1-20 meet the criteria set out in PCT Article 33(4), and thus have industrial applicability because the subject matter claimed can be made or used in industry.