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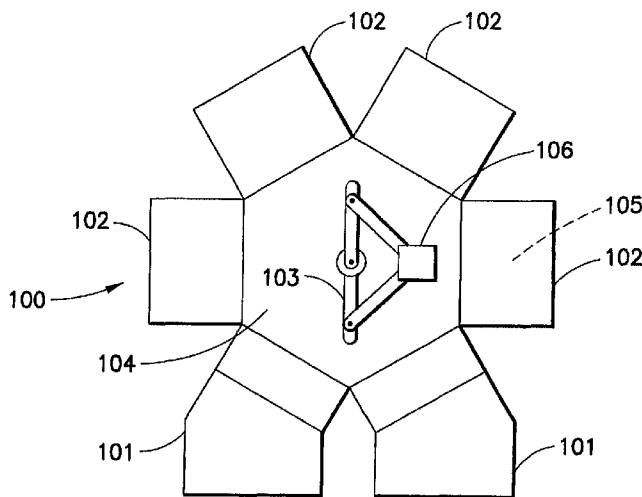
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(54) Title: HIGH SPEED SUBSTRATE ALIGNER APPARATUS



(57) Abstract: A substrate aligner providing minimal substrate transporter extend and retract motions to quickly align substrate without back side damage while increasing the throughput of substrate processing. In one embodiment, the aligner having an inverted chuck connected to a frame with a substrate transfer system capable of transferring substrate from chuck to transporter without rotationally repositioning substrate. The inverted chuck eliminates aligner obstruction of substrate fiducials and along with the transfer system, allows transporter to remain within the frame during alignment. In another embodiment, the aligner has a rotatable sensor head connected to a frame and a substrate support with transparent rest pads for supporting the substrate during alignment so transporter can remain within the frame during alignment. Substrate alignment is performed independent of fiducial placement on support pads. In other embodiments the substrate support employs a buffer system for buffering substrate inside the apparatus allowing for fast swapping of substrates.

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INTERNATIONAL SEARCH REPORT

International application No.
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A. CLASSIFICATION OF SUBJECT MATTER
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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)
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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)
USPTO EAST System (US, USPG-PUB, EPO, DERWENT)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6,729,462 B2 (BABBS et al) 04 May 2004 (04.05.2004) entire document	1, 2, 4-9
Y		3
Y	US 6,275,742 B1 (Sagues et al) 14 August 2001 (14.08.2001) entire document	3

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