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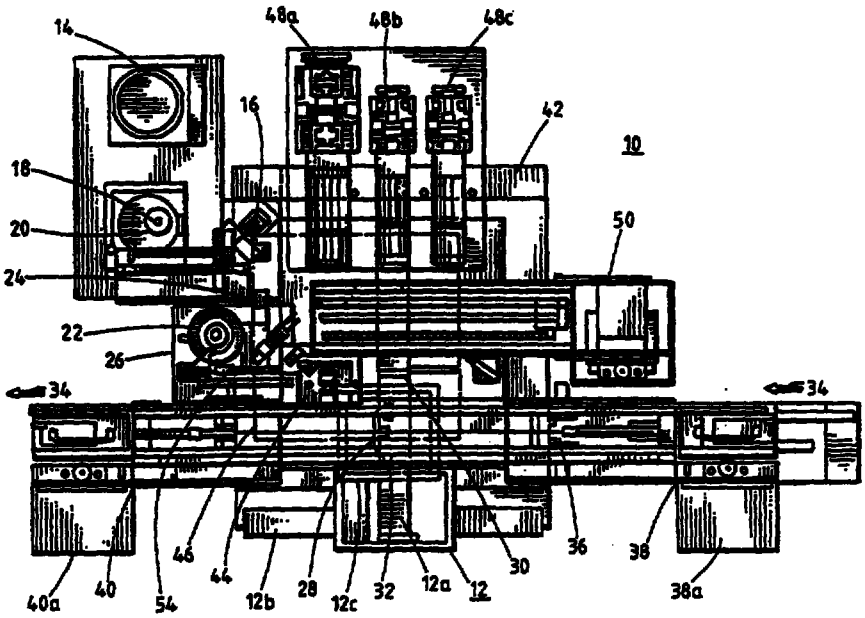
(54) Title: METHOD AND APPARATUS FOR AUTOMATICALLY POSITIONING ELECTRONIC DIE WITHIN COMPONENT PACKAGES

(57) Abstract

An apparatus for automatically positioning electronic die within temporary packages to enable continuity testing and the like between the die bond pads and the temporary package electrical interconnects is provided. The apparatus includes a robot having a programmable robot arm with a gripper assembly, die and lid feeder stations, a die inverter, and a plurality of cameras or image producers. The cameras take several pictures of the die and temporary packages to precisely align the die bond pads with the temporary package electrical interconnects. A predetermined assembly position is located along a conveyor that conveys a carrier between a first position, corresponding to an inlet, and a second position, corresponding to an outlet. The die, a restraining device and temporary package are assembled at the predetermined assembly position and tested for continuity therebetween. The apparatus further includes a fifth camera which locates the die at a wafer handler. The apparatus has a control mechanism including a microprocessor and associated program routines that selectively control the robot arm (i) to move the gripper assembly to the lid feeder station to pick up a lid, (ii) to move the gripper assembly along with the lid to pick up the die following photographing by the rough die camera, (iii) to move the gripper assembly along with the lid and the die to a position to be photographed by the fine die camera, and (iv) to move the lid and the die to the predetermined assembly position located along the conveyor. The method and apparatus may also be used for disassembly.



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