

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 14

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte YU-CHIH HUANG,
ANNIESON TSENG and MICHAEL LAN

Appeal No. 2004-2277
Application No. 09/886,760

ON BRIEF

Before STAAB, MCQUADE, and BAHR, Administrative Patent Judges.
MCQUADE, Administrative Patent Judge.

DECISION ON APPEAL

Yu-Chih Huang et al. appeal from the final rejection of claims 1 through 5, 7, 9 through 11, 13 and 15, all of the claims pending in the application.

THE INVENTION

The invention relates to "an apparatus and a method for aligning the loading/unloading of a wafer cassette onto/from a loadport by an overhead hoist transport system utilizing laser

alignment" (specification, page 1). Representative claims 1 and 9 read as follows:

1. An apparatus for aligning the loading/unloading of a wafer cassette to/from a loadport by an overhead hoist transport (OHT) system comprising:

a loadport positioned on a floor having a top surface for mounting a wafer cassette thereto, said top surface of the loadport having at least two spaced-apart laser beam projectors for projecting at least two laser beams upwardly toward an OHT rail;

an OHT rail positioned over said loadport having a bottom surface facing said loadport, said bottom surface being equipped with an energy receiving means for receiving said at least two laser beams and for sending out a signal to a process controller to determine a position of said loadport;

a process controller for receiving a signal from said energy receiving means and for comparing to pre-stored data for sending out a signal to an OHT delivery arm; and

an OHT delivery arm for receiving a signal from said process controller to correct the delivery position of said wafer cassette onto said loadport based on said signal received.

9. A method for aligning the loading/unloading of a wafer cassette to/from a loadport by an OHT system comprising the steps of:

positioning a loadport on a floor having a top surface for mounting a wafer cassette thereto;

mounting at least two spaced-apart laser beam projectors on said top surface of the loadport for projecting at least two laser beams upwardly toward an OHT rail;

positioning an OHT rail over said loadport having a bottom surface facing said loadport;

mounting an energy receiving means on said bottom surface for receiving said at least two laser beams and for sending out a signal to a process controller to determine a position of said loadport;

providing a process controller to receive a signal from said energy receiving means and for comparing to pre-stored data to send out a signal to an OHT delivery arm; and

adjusting the position of said OHT delivery arm based on said signal received from said process controller to correct the delivery position of said wafer cassette onto said loadport.

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THE PRIOR ART

The references relied on by the examiner to support the final rejection are:

Thomas et al. (Thomas) 5,798,828 Aug. 25, 1998

The prior art wafer cassette handling apparatus and method discussed in the appellants' specification and depicted in Figures 1 through 4 of the application drawings (the admitted prior art).

THE REJECTION

Claims 1 through 5, 7, 9 through 11, 13 and 15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the admitted prior art in view of Thomas.

Attention is directed to the brief (Paper No. 11) and answer (Paper No. 12) for the respective positions of the appellants and examiner regarding the merits of this rejection.¹

¹ On page 6 in the answer, the examiner refers to an additional reference, "*Computer Control of Machines and Processes* by Bollinger and Duffie," in apparent support of the appealed rejection. As this reference is not included in the statement of the rejection, we have not considered it in reviewing the merits of the appeal. Where a reference is relied on to support a rejection, whether or not in a minor capacity, there is no excuse for not positively including the reference in the statement of the rejection. In re Hoch, 428 F.2d 1341, 1342 n.3, 166 USPQ 406, 407 n.3 (CCPA 1970) and MPEP § 706.02(j).

DISCUSSION

It is not disputed that the admitted prior art wafer cassette handling apparatus and method meet all of the limitations in independent claims 1 and 9 except for those pertaining to the laser beam projectors, the energy receiving means and the measurement and control signals related thereto. To overcome these deficiencies, the examiner turns to Thomas.

Thomas discloses a multi-axis position measuring system useful in machine tool calibration and a variety of other industrial applications:

[m]any critical positioning applications other than machining will also benefit from the present precision positioning apparatus, including operations related to rail transport, autonomous materials handling vehicles and robotic workstations. The present invention has potential uses as either open-loop or closed-loop feedback in assembly operations, docking maneuvers, micromachining, laser machining, material deposition, and inspection camera positioning [column 3, lines 27 through 34].

The Thomas system includes an emitter unit 3 and a sensor unit 5 mounted on relatively movable parts of a machine, and a processing unit 7. The emitter unit consists of multiple laser beam emitters 13, 15, and the sensor unit consists of multiple CCD or photodetector arrays 21 for detecting the laser beams.

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Together, the emitter and sensor units function to establish a reference and to measure position deviations in order to provide the accurate feedback necessary for positioning operations (see column 6, line 49, through column 7, line 13). The processing unit is a computer or a microcontroller which receives the position information from the sensing unit for subsequent display or for use as input in a closed-loop positioning system (see the Abstract).

In combining the admitted prior art and Thomas to reject independent claims 1 and 9, the examiner submits that it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the admitted prior art apparatus and method with the system taught by Thomas in order to align the prior art loadport and wafer cassette delivery system (see pages 4 and 5 in the answer).

The appellants counter that this rejection is unsound because the applied prior art, and particularly Thomas, fails to respond to the above noted claim limitations. According to the appellants, "Thomas et al does not teach a closed-loop control system that actually uses the measured data to perform any correction in the positioning system (for adjusting any misalignment)" (brief, page 7).

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Although the Thomas patent does not include a detailed description of any closed-loop control system that uses the measured position data to correct misalignment, it expressly indicates that the position measuring system disclosed therein can be used for this purpose. Moreover, a person of ordinary skill in the art would have readily appreciated this system to be relevant to the admitted prior art wafer cassette handling apparatus and method in view of (1) the disclosure by Thomas that the system may be used in connection with rail transport, material handling vehicles, robotic workstations and for docking maneuvers, all of which are reasonably descriptive of the admitted prior art wafer cassette handling apparatus and method, and (2) the knowledge in the art that the admitted prior art apparatus and method were subject to misalignment problems (see the paragraph bridging pages 5 and 6 in the appellants' specification).

The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references.

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Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See In re Keller, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981).

In the present case, the foregoing teachings and knowledge embodied by the admitted prior art and Thomas would have furnished the artisan with ample suggestion or motivation to provide the admitted prior art wafer cassette handling apparatus and method with a closed-loop position control system based on the position measuring system disclosed by Thomas in order to solve the known misalignment problems of this apparatus and method, thereby arriving at the subject matter recited in claims 1 and 9.

Accordingly, we shall sustain the standing 35 U.S.C. § 103(a) rejection of independent claims 1 and 9 as being unpatentable over the admitted prior art in view of Thomas.

We also shall sustain the standing 35 U.S.C. § 103(a) rejection of dependent claims 2 through 5, 7, 10, 11, 13 and 15 as being unpatentable over the admitted prior art in view of Thomas since the appellants have not challenged such with any reasonable specificity, thereby allowing these claims to stand or fall with their respective parent claims 1 and 9 (see In re

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Nielson, 816 F.2d 1567, 1572, 2 USPQ2d 1525, 1528 (Fed. Cir. 1987)).

SUMMARY

The decision of the examiner to reject claims 1 through 5, 7, 9 through 11, 13 and 15 is affirmed.

AFFIRMED

LAWRENCE J. STAAB)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
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)	APPEALS AND
JOHN P. MCQUADE)	
Administrative Patent Judge)	INTERFERENCES
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JENNIFER D. BAHR)	
Administrative Patent Judge)	

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