

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Ex parte ERIC R. WOOD, RICHARD CRABB and
JAMES A. ALEXANDER

Appeal No. 2006-0525
Application No. 10/437,207

ON BRIEF

Before FRANKFORT, OWENS, and CRAWFORD, Administrative Patent Judges.
CRAWFORD, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1 to 15, which are all of the claims pending in this application.

The appellants' invention relates to a system and method of substrate handling in semiconductor processing, and specifically to a robot arm with primary and secondary substrate locations on a paddle-type end effector (specification, p. 1). A copy of the claims under appeal is set forth in the appendix to the appellants' brief.

The prior art

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Tada	5,147,175	Sep. 15, 1992
Aswad	6,073,366	Jun. 13, 2000

The rejection

Claims 1 to 15 stand rejected under 35 U.S.C. § 103 as being unpatentable over Aswad in view of Tada.

Rather than reiterate the conflicting viewpoints advanced by the examiner and the appellants regarding the above-noted rejection, we make reference to the answer (mailed August 16, 2005) for the examiner's complete reasoning in support of the rejection, and to the brief (filed June 24, 2005) and reply brief (filed October 17, 2005) for the appellants' arguments thereagainst.

OPINION

In reaching our decision in this appeal, we have given careful consideration to the appellants' specification and claims, to the applied prior art references, and to the respective positions articulated by the appellant and the examiner. As a consequence of our review, we make the determinations which follow.

The examiner has rejected the claims under 35 U.S.C. § 103. We initially note that the test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art. See In re Young, 927 F.2d 588, 591, 18 USPQ2d 1089, 1091 (Fed. Cir. 1991) and In re Keller, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981).

The examiner finds that Aswad discloses the invention as claimed except that Aswad does not disclose a second position on the first arm for placing a substrate (answer at pages 3 to 4). The examiner relies on Tada for teaching an end effector for moving substrates where the effector has two locations for holding substrates. The examiner concludes:

It would have been obvious to one of ordinary skill in the art, at the time of invention that providing the first arm of the device taught by Aswad with a second wafer position as taught by Tada would make the handling device more versatile by allowing the secondary wafer position to occupy the space of the first wafer position when the arm carrying the effector is extended, thereby increasing the wafer transfer efficiency of the system it is operating within by allowing a direct swap of substrates between the arms and any chamber [answer at page 4].

Aswad describes a robot assembly for transferring thin flat substrates between a storage area 120 and a processing chamber 122, which includes a first robot arm 26 and a second robot arm 24 (col. 5, lines 19 to 22). The first robot arm 26 has a paddle 39 on the end thereof and the second robot arm 24 has a Bernoulli wand 30 on the end thereof (col. 5, lines 33 to 47).

Tada describes a frog leg type wafer transfer device for transferring wafers from each processing chamber for processing which includes a wafer support plate 13 having two wafer mounts 13a and 13b to transfer two wafers 14 simultaneously (col. 6, lines 26 to 32; Figure 1) . Tada discloses that the ability to transfer two wafers instead of one in the Tada environment improves the efficiency of the device (col. 6, lines 31 to 47; col. 7, lines 5 to 32).

The examiner's rationale in support of this rejection is basically that one would have been motivated to include the ability to transfer two wafers at a time in the Aswad device because Tada teaches that transferring two wafers at a time positively affects efficiency. Firstly, in our view the efficiency gains taught by Tada are related to the Tada arrangement and do not necessarily transfer to the Aswad arrangement. In this regard, we agree with the appellants that the efficiencies of wafer transfer devices is more complicated than two is better than one, as evidenced by the appellants' process to utilize the two wafer positions disclosed on pages 5 to 7 of the specification and depicted in Figures 6A to 6H. Secondly, and most importantly, there is no suggestion in

the prior art of providing Aswad with a secondary location for supporting the substrate which is disposed between the free end and the supported end of the first robot arm as is required by claim 1. There is no direction in the prior art regarding where a second wafer would be placed in the Aswad device. In fact, as Tada teaches a frog leg configuration to transfer two wafers at a time, a combination of the teachings of Aswad and Tada would seem to suggest to a person of ordinary skill in the art that the paddle configuration described in Aswad be replaced with the frog leg configuration of Tada in which case appellants invention would not result. There is certainly no teaching or suggestion in either Aswad or Tada to place the second wafer on a secondary location on the first robot disposed between the free end and the supported end.

We will not sustain this rejection as it is directed to claim 1, and claims 2 to 7 dependent thereon, because we find no teaching or suggestion to combine the teachings of Aswad and Tada to arrive at the claimed invention. We will also not sustain this rejection as it is directed to claim 8 and claims 9 to 12 dependent thereon because claim 8 recites similar language to the language of claim 1, i.e. a secondary substrate support positioned between the primary support and a supported end of the first robot arm. We will also not sustain this rejection as it is directed to claim 13 and claims 14 and 15 because claim 13 contains identical language as claim 1 in regard to the secondary location on the first robot arm.

The decision of the examiner is reversed.

REVERSED

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