UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ATSUHIRO FUJII, NORIO KAJITA,
MITSUYASU OKABE, and SHOJI KOMATSU

Appeal 2007-2332
Application 09/561,634
Technology Center 3600

Decided: February 26, 2008

Before WILLIAM F. PATE, III, JENNIFER D. BAHR, and
DAVID B. WALKER, *Administrative Patent Judges*.

WALKER, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellants seek our review under 35 U.S.C. § 134 of the Examiner's final rejection of claims 3, 6, 9, 12, 15, 18, and 19. We have jurisdiction under 35 U.S.C. § 6(b) (2002). We reverse.

Appellants claim a cylinder, a load port using it, and a production system using the load port, and in particular, a load port which complies with the SEMI standard and copes with FOUPs (Front Opening Unified Pods) having a variety of latchkey receptacle shapes (Specification, 1). Claim 3, reproduced below with added emphasis, is representative of the subject matter on appeal.

> 3. A load port which comprises a frame having an opening; a stage holding a substrate container having a front door to seal inside airtight using a latch and movable in the direction of said frame direction; and a port door which is inserted into said opening from the opposite side to said stage to perform latching operation of said front door, and which locks and unlocks said latch of said front door after said front door is fixed to said port door;
>
> said port door comprising a latchkey by which said latch is locked and unlocked when said latchkey is turned to place a latchkey receptacle disposed in said front door at the vertical and horizontal positions, respectively, and a cylinder to turn said latchkey **whereby in a locking operation, when said latchkey is rotated beyond the vertical position from the horizontal position to place said latchkey receptacle at the vertical position and the latchkey is then rotated reversely to be at the vertical position, both said latchkey and said latchkey receptacle are placed at the vertical position at the end of the locking operation**.

THE REJECTIONS

The Examiner relies upon the following as evidence in support of the rejections:

Nering	US 6,082,951	Jul. 4, 2000

Claims 1, 2, and 20 have been allowed. Claims 4, 5, 7, 8, 10, 11, 13, 14, 16, 17, 21, and 22 are objected to. Claims 3, 6, 9, 12, 15, 18, and 19 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Nering.

ISSUE

The issue before us is whether Appellants have shown that the Examiner erred in rejecting claims 3, 6, 9, 12, 15, 18, and 19 as unpatentable over Nering. The dispositive issue is whether the Examiner has established a prima facie case of obviousness over the cited prior art. The issue turns on whether Nering teaches the required structural arrangement of a cylinder to turn a latchkey required by independent claims 3 and 15 or whether that arrangement would have been obvious in light of the SEMI industry standard.

Rather than repeat the arguments of Appellants and the Examiner, we make reference to the Brief and the Answer for their respective details. Only those arguments actually made by Appellants have been considered in this decision. Arguments which Appellants could have made but chose not to make in the Briefs have not been considered and are deemed to be waived. *See* 37 C.F.R. § 41.37(c)(1)(vii) (2004).

FINDINGS OF FACT

We find the following enumerated findings to be supported by at least a preponderance of the evidence. *Ethicon, Inc. v. Quigg*, 849 F.2d 1422, 1427 (Fed.

Cir. 1988) (explaining the general evidentiary standard for proceedings before the Office).

1. Nering discloses a pod loading station and method of operation for enabling the transfer and introduction of wafers into a processing system from a wafer pod (Nering, abstract).
2. Nering describes commercially available pod loading stations that are very similar in function and appearance as they are all designed to meet applicable SEMI standards for the interface to the processing system as well as the interface to the pod and the pod loading station. These prior art designs are listed as sharing several details including a mechanism to grip a pod door and operate the pod door latch mechanism (Nering, col. 1, 58 – col. 2, l. 6).
3. Nering teaches a design in which both the configuration of the door latching mechanism and the alignment pins are determined by the SEMI standards for wafer pods. Each of the door latch actuating mechanisms includes a key rotatably mounted in the base of the pod door receiver (Nering, col. 5, ll. 8-13).
4. Nering describes a preferred embodiment in which two stops are disposed on a base plate in a spaced relationship to define a travel range during which locking and unlocking of the pod can occur. Figure 5a displays the mechanism in the unlocked position, while Figure 5b shows the lock mechanism in the locked position (Nering, col. 4, ll. 36-43). Figure 7a also shows the latching mechanisms in the locked position.

On actuation of the actuator, the latching mechanisms rotate clockwise as shown in Figure 7b (Nering, col. 5, ll. 26-29).

5. Nering does not teach a cylinder to turn a latchkey whereby in a locking operation, when said latchkey is rotated beyond the vertical position from the horizontal position to place said latchkey receptacle at the vertical position and the latchkey is then rotated reversely to be at the vertical position, both said latchkey and said latchkey receptacle are placed at the vertical position at the end of the locking operation.

PRINCIPLES OF LAW

"Section 103 forbids issuance of a patent when 'the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.'" *KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1734 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art, (2) any differences between the claimed subject matter and the prior art, (3) the level of ordinary skill in the art, and (4) where in evidence, so-called secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966). *See also KSR*, 127 S.Ct. at 1734 ("While the sequence of these questions might be reordered in any particular case, the [*Graham*] factors continue to define the inquiry that controls.")

In rejecting claims under 35 U.S.C. § 103(a), the examiner bears the initial burden of establishing a prima facie case of obviousness. *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992). *See also In re Piasecki*, 745 F.2d 1468, 1472 (Fed. Cir. 1984). Only if this initial burden is met does the burden of coming forward with evidence or argument shift to the appellant. *Id.* at 1445. *See also Piasecki*, 745 F.2d at 1472. Obviousness is then determined on the basis of the evidence as a whole and the relative persuasiveness of the arguments. *See Oetiker*, 977 F.2d at 1445; *Piasecki*, 745 F.2d at 1472.

ANALYSIS

The Appellants argue that Nering does not teach the structural arrangement required by Claims 3 and 15 (Br. 6). The Appellants describe the missing structure as an arrangement wherein the latchkey is smaller than the latchkey receptacle, such that the latchkey receptacle will not reach the vertical position when the latchkey itself is turned clockwise to the vertical position. Thus, the latchkey is rotated a further increment beyond the vertical position to place the latchkey receptacle at the vertical position in which the latchkey remains in contact with the latchkey receptacle. The latchkey is then rotated reversely to itself reach the vertical position. After the reverse rotation of the latchkey, both the latchkey and the latchkey receptacle are aligned at the vertical position and the latchkey does not contact the latchkey receptacle (Br. 6).

The Examiner found that Nering does not teach the angle that the latch keys rotate through to open the carrier door; however it does teach the system as being

compatible with SEMI standards for opening a FOUP door, which standards incorporate a ±1 ° rotation of the latch keys from the horizontal and vertical positions (Answer 4). The Examiner found that it would have been obvious to one of ordinary skill in the art at the time of the invention to have the device taught by Nering turn the latch keys ±1 ° in relation to the vertical and horizontal planes when opening and closing a carrier door in order to meet the SEMI standards they are building the device to meet (Answer 4).

The Appellants argue that the SEMI standard does not contemplate or suggest the rotation of a latch key through the 90 degree (vertical) position by a further increment to vertically locate the latchkey receptacle, followed by rotation of the latchkey in a reverse direction to vertically locate the latchkey, as claimed (Br. 7). We find no persuasive evidence of record to the contrary.

The Examiner found that the whereby clause (bolded above) is treated as functional language that the device must be capable of performing. The Examiner found that Nering is clearly capable of performing the function as claimed and one of ordinary skill in the art would have seen this at the time of the invention (Answer 4). We disagree. The whereby clause recites additional structural limitations on the cylinder for turning the latchkey that must be met.

The Examiner further found that the Appellants' disclosure on pages 3 and 4 also describes the SEMI standard in more detail regarding moving latch keys ±1 ° past horizontal and vertical positions during latching and unlatching of cassette doors (Answer 4-5). The Examiner mischaracterizes Appellants' disclosure, which teaches that the SEMI standard defines the tolerance of the rotation angle of the

latchkey as ±1 ° at the 0-degree position and 90-degree position. The Specification teaches that the standard does not stipulate the size of the latchkey receptacle so that latchkey receptacles may not rotate 90 degrees even if latchkeys rotate 90 degrees in the case where the width of the latchkey receptacle is larger than the width of the latchkey (Specification 3). The latchkey receptacles are corrected to the 90-degree position after latches are locked by turning the latchkeys beyond 90 degrees and then returning them to the 90-degree position (Specification 4). The Specification discloses using a cylinder as a driver of a latchkey (Specification 4). In order to set latchkey receptacles at a 90-degree position, a cylinder is required with a piston rod that stops at three different positions (Specification 5).

Because neither Nering nor the SEMI standard teaches or requires a cylinder to turn a latchkey whereby in a locking operation, when said latchkey is rotated beyond the vertical position from the horizontal position to place said latchkey receptacle at the vertical position and the latchkey is then rotated reversely to be at the vertical position, both said latchkey and said latchkey receptacle are placed at the vertical position at the end of the locking operation as required by both independent claims 3 and 15 on appeal, the Examiner has not met the burden of setting forth a prima facie case of obviousness over Nering.

The Appellants have shown error in the Examiner's rejection of independent claims 3 and 15, as well as claims 6, 9, 12, 18, and 19 depending therefrom.

CONCLUSIONS

We conclude that Appellants have shown that the Examiner erred in rejecting claims 3, 6, 9, 12, 15, 18, and 19 under 35 U.S.C. § 103(a).

DECISION

The decision of the Examiner to reject claims 3, 6, 9, 12, 15, 18, and 19 under 35 U.S.C. § 103(a) is reversed.

REVERSED

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