

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 12

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte AARON L. GRAY, III and ELIZABETH C. COOKE

Appeal No. 98-0457
Application 08/604,813¹

ON BRIEF

Before ABRAMS, STAAB and CRAWFORD, *Administrative Patent Judges*.

STAAB, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on an appeal from the examiner's final rejection of claims 1-17, all the claims in the application.

As aptly stated on page 1 of the specification,

¹ Application for patent filed February 23, 1996.

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appellants' invention relates to "moisture barrier bags of the type used to transport and store semiconductor wafers, and more particularly to a bag having a window for optically inspecting wafers contained in the bag." Independent claim 1, a copy of which is found in an appendix to appellants' brief, is exemplary of the appealed subject matter.

The references relied upon by the examiner in support of rejections under 35 U.S.C. § 103 are:

Salfisberg	2,298,421	Oct. 13, 1942
Pokras	3,409,063	Nov. 5, 1968
Schwinn (German Patent Document)	3,907,291	Sept. 13, 1990

In addition, the examiner relies on appellants' admitted prior art (AAPA) as set forth on page 1 of the specification under the heading "Background of the Invention."²

² With respect to the "Background" discussion found on page 1 of the specification, we note the Japanese Abstract, Publication No. 02180181 (Mitsubishi Electric Corp.), July 13, 1990, included in appellants' Information Disclosure Statement (Paper No. 8) filed subsequent to the final rejection and the answer, which submission has been indicated by the examiner as having been considered (Paper No. 11). The Mitsubishi publication discloses a moisture proof package having a transparent window for allowing the type and name of its contents to be confirmed, with the transparent window being covered by a seal that may be peeled off when the contents is to be confirmed. In that the Mitsubishi package appears to be for semi-conductor wafers or the like, it would seem that a discussion thereof in the "Background" section of the

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The claims stand rejected as follows:

(a) claims 1-8 and 16, under 35 U.S.C. § 112, second paragraph, as being indefinite;

(b) claims 1 and 16, under 35 U.S.C. § 103, as being unpatentable over AAPA in view of Salfisberg.

(c) claims 2, 3, 9, 10 and 17, under 35 U.S.C. § 103, as being unpatentable over AAPA in view of Salfisberg and further in view of Schwinn; and

(d) claims 4-8 and 11-15, under 35 U.S.C. § 103, as being unpatentable over AAPA in view of Salfisberg and Schwinn, and further in view of Pokras.

The rejections are explained in the examiner's answer (Paper No. 7). The opposing viewpoints of appellants are set forth in the brief (Paper No. 6).

*The § 112, second paragraph, rejection
(rejection (a))*

The examiner contends that claims 1-8 and 16 are indefinite because "[i]n claim 1, the phrase 'a moisture

specification would be appropriate in the event of further prosecution.

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transmission rate which is sufficiently small' is vague and indefinite because it has no clear meaning" (answer, page 4).

The purpose of the requirement stated in the second paragraph of 35 U.S.C. § 112 is to provide those who would endeavor, in future enterprise, to approach the area circumscribed by the claims in a patent, with the adequate notice demanded by due process of law, so that they may more readily and accurately determine the boundaries of protection involved and evaluate the possibility of infringement and dominance. *In re Hammack*, 427 F.2d 1378, 1382, 166 USPQ 204, 208 (CCPA 1970). Definiteness problems often arise when words of degree are used in a claim. In such cases, it must be decided whether one of ordinary skill in the art would understand what is claimed when the claim is read in light of the specification. *See Seattle Box Co., Inc. v. Industrial Crating & Packing, Inc.*, 731 F.2d 818, 826, 221 USPQ 568, 573-74 (Fed. Cir. 1984).

The examiner's asserted reason for indefiniteness pertains to the term of degree "sufficiently small" used to define the moisture transmission rate of the material of the

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bag. On page 1 of the specification, appellants disclose that

[s]emiconductor wafers such as those used in various electronics applications may be damaged if contacted by moisture because water chemically attacks semiconductor materials. To inhibit moisture contact, semiconductor wafers are usually stored and transported in some type of moisture barrier.

On page 2 of the specification, appellants further disclose that

[t]he moisture barrier material has a moisture transmission rate which is sufficiently small to permit storage of semiconductor wafers within the volume for an extended period of time without damaging the wafers by moisture attack.

In addition, appellants' specification on page 5 gives preferred moisture transmission rates for the opaque and transparent materials used to make the bag.

In light of the guidance provided by these disclosures, we are convinced that one of ordinary skill in the art would have no trouble understanding the metes and bounds of appellants' claims when read in light of the specification. While appellants' claim language is broad in not stating a precise value for the moisture transmission rate of the material of the bag, here that breadth does not make the claim

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language indefinite. *Compare In re Miller*, 441 F.2d 689, 693, 169 USPQ 597, 600 (CCPA 1971) (breadth is not to be equated with indefiniteness). It follows that we will not sustain the examiner's 35 U.S.C. § 112, second paragraph, rejection.

*The § 103 rejection of claims 1 and 16
(rejection (b))*

Considering next the examiner's § 103 rejection of claims 1 and 16, it is the examiner's position that (1) it would have been obvious to one of ordinary skill at the time of appellants' invention to provide the moisture barrier bag of AAPA with a transparent window panel, and (2) the modified AAPA bag would correspond to the subject matter of claims 1 and 16.

The test for obviousness is what the combined teachings of the references would have suggested to those of ordinary skill in the art. *In re Keller*, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). In evaluating the teachings of the prior art, all of the disclosures of each reference should be considered for what it would have fairly taught one of ordinary skill in the art (*In re Boe*, 355 F.2d 961, 965, 148

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USPQ 507, 510 (CCPA 1966)). In addition, not only should the specific teachings of each reference be considered, but also the inferences which one skilled in the art would reasonably have been expected to draw therefrom (*In re Preda*, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968)).

Applying these principles to the obviousness issue presented in this appeal, we find, based on our reading of the "Background" section on page 1 of the specification (AAPA), that it was known prior to appellants' invention that semiconductor wafers are susceptible to damage if contacted by moisture, and that, in order to combat this problem, such items were typically stored and transported in some type of moisture barrier packaging (specification, page 1, lines 7-12). We further find that it was known to provide such moisture barrier packaging in the form of a bag made entirely from an opaque material having an ultra-low moisture transmission rate, one such material being a laminate made by vapor depositing aluminum on clear acrylar polymer sheet, but that a recognized deficiency of this type of bag was that its contents could only be optically confirmed by opening the bag, thereby compromising its moisture barrier integrity

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(specification, page 1, lines 12-25). We still further find that it was known that semiconductor wafers packages made entirely of transparent materials would allow for optical confirmation of its contents without opening, but that such packages would be inferior to bags made from the above noted opaque material in that packages made entirely of transparent material typically would have a higher moisture transmission rate (specification, page 1, lines 25-30). Turning to Salfisberg, this reference teaches packages "that have one wall or a portion thereof formed of flexible transparent material through which the contents of the packages may be viewed or displayed" (page 1, left column, lines 1-4). Given the foregoing teachings of the applied prior art, it is our view that it would have been obvious to one of ordinary skill in the art to provide a portion of one of the walls of the opaque package of AAPA with a window of transparent material to obtain the benefit taught by Salfisberg, namely, to allow for viewing of the contents thereof, and thereby arrive at the subject matter of claims 1 and 16.

Appellant's arguments in the brief have been considered but are not persuasive of error on the examiner's part in

rejecting claims 1 and 16. In particular, we note the argument that appellants' specification "cast[s] considerable doubt on whether a bag including transparent material would have satisfactory moisture transmission properties" (brief, page 8), and the argument that appellants' specification "suggests that transparent material should not be used in moisture barrier bags because transparent material transmits moisture which could damage wafers in the bag" (brief, page 9). These arguments are not well taken because, in our view, they misrepresent what the "Background" section of appellants' specification discloses was the state of the art at the time of appellants' invention, and because they draw an unwarranted conclusion as to what the discussion of the prior art in appellants' specification would have fairly taught one of ordinary skill in the art. From our perspective, the "Background" section of the specification simply indicates that semi-conductor wafer packages made *entirely* of ultra-low moisture transmission rate opaque material³, or *entirely* of

³"In the past, the moisture barrier bags were made *entirely* of low cost material having ultra-low moisture transmission rates. . . . Because the laminate is opaque, technicians and machines are unable to optically inspect the

higher moisture transmission rate transparent material⁴, were not entirely satisfactory. One of ordinary skill in the art would not, in our opinion, derive from these teachings that any use of transparent material in packaging semi-conductor wafers should be avoided, as appellants would apparently have us believe.

Appellants' argument on page 9 of the brief to the effect that the teachings of Salfisberg conflict with those of AAPA is not well taken because it is founded on a position with which we do not agree, namely, that AAPA teaches that the use of transparent material in packaging semi-conductor wafers is to be avoided. As to the argument that "bags of the type disclosed by Salfisberg generally do not have low moisture transmission properties of the type which would be of interest in the field of semiconductor packaging" (brief, page 9), this argument is speculative, and, even if true, is not fatal to the rejection because Salfisberg is not relied upon for a

contents of the bags" (specification, page 1; emphasis added).

⁴"Moreover, bags made *entirely* of transparent materials have proved to be unsatisfactory because they typically have higher moisture transmission rates . . ." (specification, page 1; emphasis added).

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teaching of low moisture transmission properties of the type called for in claim 1. In addition, to the extent appellants suggest that Salfisberg is non-analogous art (brief, pages 9-10), we do not agree. In our view, Salfisberg's display package teaching is reasonably pertinent to the problem with which appellants were involved, i.e., "a bag having a window for optically inspecting wafers contained in the bag" (specification, page 1), thus satisfying the second prong of the test for analogous art set forth in *In re Wood*, 599 F.2d 1032, 1036, 202 USPQ 171, 174 (CCPA 1979).

In light of the foregoing, we will sustain the standing rejection of claims 1 and 16 as being unpatentable over AAPA in view of Salfisberg.

*The § 103 rejection of claims 2, 3, 9, 10 and 17
(rejection (c))*

With regard to claims 2, 3, 9, 10 and 17, appellants do not expressly challenge the examiner's findings on page 6 of the answer with respect to the Schwinn reference additionally cited in support of this rejection, or the examiner's position that it would have been obvious to modify the AAPA/Salfisberg combination in the manner proposed in light of Schwinn's

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teachings. In fact, appellants do not contend that these claims recite any additional patentable distinctions over the combined teaching of AAPA and Salfisberg. Instead, appellants are content with asserting on pages 10-11 of the brief that these claims are patentable because Schwinn does not make up for the alleged deficiencies of AAPA and Salfisberg argued by appellants with respect to claims 1 and 16. Such an argument is not tantamount to an argument that claims 2, 3, 9, 10 and 17 are patentable separately of claims 1 and 16. In short, appellants have failed to separately argue the patentability of these claims with any reasonable specificity. They therefore fall with claims 1 and 16. See *In re Nielson*, 816 F.2d 1567, 1570, 2 USPQ2d 1525, 1528 (Fed. Cir. 1987) and *In re Burckel*, 592 F.2d 1175, 1178-79, 201 USPQ 67, 70 (CCPA 1979).

*The § 103 rejection of claims 4-8 and 11-15
(rejection (d))*

We agree with appellants' argument on page 11 of the brief that the combined teachings of the applied references, and in particular the Pokras reference additionally relied upon by the examiner in this rejection, do not teach or

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suggest the provision of a transparent window panel having six sides, as required by claims 4-6, 14 and 15. Accordingly, we will not sustain the § 103 rejection of these dependent claims.

Dependent claims 7 and 12 require that the moisture transmission rate of the material of the opaque panel and the transparent window panel are less than or equal to about 0.005 gm/cm²/day, while claims 8 and 13 depend respectively from claims 7 and 12 and add that the opaque panel sheet material has a moisture transmission rate of less than about 0.0006 gm/cm²/day. Appellants argue in summary fashion (brief, page 12) that the moisture transmission rate requirement of the transparent panel is not disclosed or suggested by the prior art.

While the "Background" section of AAPA does not disclose the specific moisture transmission rate of the material(s) used to make the package, one of ordinary skill in the art would recognize that, generally speaking, the moisture transmission rate of a particular sheet material is a

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parameter that can be varied within certain limits, and that the overall acceptable moisture transmission rate for a package used to store and transmit semiconductor wafers is a parameter that may vary depending, inter alia, on the amount of time the semiconductor wafers are to be stored in the package, the moisture content of the surrounding atmosphere, and the degree of sensitivity to damage from moisture of a particular semiconductor wafer. That is, the moisture transmission rate of the packaging materials is result effective variable. Generally, it is considered to have been obvious to develop workable or even optimum ranges for such variables. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955); *In re Boesch*, 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980). As stated by the court in *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990):

The law is replete with cases in which the difference between the claimed invention and the prior art is some range or other variable within the claims These cases have consistently held that in such a situation, the applicant must show that the particular range is *critical*, generally by showing that the claimed range achieves unexpected results relative to the prior art range. [Emphasis in original; citations omitted].

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Since appellants have not demonstrated or even alleged that the specifically claimed range for the moisture transmission rate of the transparent window panel produces unexpected results, it is our conclusion that it would have been obvious for an artisan with ordinary skill in the art to determine a workable or even optimum value for the moisture transmission rate of the window panel and thereby produce a moisture barrier bag having a window panel moisture transmission rate within the range set forth in claims 7 and 12.

We therefore will sustain the standing § 103 rejection of claims 7, 8, 12 and 13.

Claim 11 has not been separately argued with any reasonable degree of patentability apart from claim 10, from which it depends. Accordingly, it falls with the claims from which it depends. See *In re Nielson*, 816 F.2d at 1570, 2 USPQ2d at 1528 (Fed. Cir. 1987) and *In re Burckel*, 592 F.2d at 1178-79, 201 USPQ at 70 (CCPA 1979).

Summary

The § 112, second paragraph, rejection of claims 1-8 and

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16 (rejection (a)) is reversed.

The § 103 rejection of claims 1 and 16 based on AAPA and Salfisberg (rejection (b)) is affirmed.

The § 103 rejection of claims 2, 3, 9, 10 and 17 based on AAPA, Salfisberg and Schwinn (rejection (c)) is affirmed.

The § 103 rejection of claims 4-8 and 11-15 based on AAPA, Salfisberg, Schwinn and Pokras (rejection (d)) is affirmed as to claims 7, 8, 11-13, but is reversed as to claims 4-6, 14 and 15.

The decision of the examiner is affirmed-in-part.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED-IN-PART

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