

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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. 16

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte CHI-HUEY WONG

Appeal No. 1999-1331
Application No. 08/547,602

ON BRIEF

Before ROBINSON, SCHEINER, and MILLS, Administrative Patent Judges.

ROBINSON, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on the appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 12 - 15, which are all of the claims pending in the application.

Claims 12 - 15 read as follows:

12. A method for synthesizing L-fucose comprising the following steps:

Step A: providing L-fuculose-1-phosphate by an aldol addition reaction between dihydroxyacetone phosphate and DL-lactaldehyde, said aldol addition reaction being catalyzed by L-fuculose-1-phosphate aldolase;

Step B: Converting the L-fuculose-1-phosphate of said Step A to

The rejection under 35 U.S.C. § 103(a)

In reaching our decision in this appeal, we have given careful consideration to the appellant's specification and claims and to the respective positions articulated by the appellant and the examiner. We make reference to the Examiner's Answer of October 14, 1998 (Paper No. 15) for the examiner's reasoning in support of the rejection and to the appellant's Appeal Brief filed August 3, 1998 (Paper No. 14) for the appellant's arguments thereagainst.

The initial burden of presenting a prima facie case of obviousness rests on the examiner. In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). On the record before us, we find no error in the examiner's determination that the combined disclosures of Liu, Green, and Schweiger are sufficient to establish a prima facie case of obviousness within the meaning of 35 U.S.C. § 103 as to the subject matter of claims 12 - 15.

The examiner relies on Liu as disclosing (Answer, page 4):

a process of preparing L-fuculose through a process comprising providing L-fuculose-1-phosphate by an aldol addition reaction between DHAP^[1] and DL-lactaldehyde, said reaction being catalyzed by L-fuculose-1-phosphate aldolase, and then converting the L-fuculose-1-phosphate to L-fuculose, said conversion being catalyzed by acid phosphatase. (Citations omitted). The process was carried out with intervening purification steps, . . . In sum, Liu discloses steps A and B of the claimed process.

As acknowledged by the examiner, Liu does not disclose that part of the claimed process wherein L-fuculose is converted to L-fucose by L-fuculose isomerase. (Id.)

¹ dihydroxyacetone phosphate

However, the examiner relies on Green as disclosing the conversion of L-fuculose to L-fucose using L-fuculose isomerase in a manner which corresponds to step C of the process of Claim 12. In addition, the examiner relies on both Green and Schweiger as establishing that L-fucose is a desirable product. (Id.) The examiner then concludes that (Answer, page 5):

the artisan of ordinary skill at the time of applicant's invention would have recognized from Green that the L-fuculose prepared by the process of Liu could have been readily converted to L-fucose by L-fuculose isomerase. The artisan of ordinary skill would clearly have been motivated to have converted the L-fuculose of Liu to the L-fucose of Green by the disclosure of the Green and Schweiger references that L-fuculose of Liu is an important sugar having utility in the medical fields.

The examiner has separately addressed the subject matter of claim 15, taking the position that carrying out the process of preparing fucose as claimed in claim 12, without purification of the individual intermediates would also have been within the purview of the skilled artisan at the time of appellant's invention. (Id.)

In our opinion, the combined disclosure of these references would have reasonably suggested to one of ordinary skill in this art, at the time of the invention, the process of preparing fucose in the manner presently claimed.

Thus, on this record, the examiner has provided evidence which would reasonably established that the claimed subject matter would have been prima facie obvious within the meaning of 35 U.S.C. § 103 at the time of the invention. Where, as here, a prima facie case of obviousness has been established, the burden of going forward shifts to the appellant. In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785,

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788 (Fed. Cir. 1984), In re Rinehart, 531 F.2d 1048, 1052, 189 USPQ 143, 147 (CCPA 1976).

Appellant, initially, argues that the examiner has failed to establish a prima facie case of obviousness in that "[a] disclosure in the prior art that a product merely has utility is not evidence of a motivating force which would impel a person skilled in the art to combine prior art methods to form a new process for making such product." (Brief, page 5). However, whether one views the combination as suggesting a possible source of L-fuculose for use in the process of Green or as suggesting a use for the product resulting from the process of Liu, it is reasonable to conclude that one of ordinary skill in this art, viewing the disclosure of Liu, Green, and Schweiger, would readily appreciate that the combination of the two processes would provide a source of the desired product, L-fucose. To the extent that appellant argues that the motivation to combine these references relies merely on the disclosed utility (Green and Schweiger), it would appear that appellant's consideration of these references is too narrow. Green, in particular, describes a process for obtaining L-fucose and, taken with the known usefulness of L-fucose in the medical field (Schweiger and Specification, page 2, lines 19-22), serves as establishing the reason or motivation for carrying out the process disclosed therein. Green requires as a starting material the L-fuculose which could be provided by the process of Liu. The combination naturally follows from the combined teachings of the references.

Appellant, further, urges that (Brief, page 6):

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[a] person of ordinary skill in the art would not have considered it practical to combine the process of Green, i.e., the use of a cell free extract for converting L-fuculose to L-fucose, with the process of Liu in order to convert dihydroxyacetone phosphate and DL-lactaldehyde into L-fucose . . . [s]ince L-fucose has mostly biomedical utility, it would be considered impractical to use a process for making L-fucose which employed a cell-free extract of *E.coli* because of the potential introduction of pathological impurities.

However, this appears to be mere speculation on the part of the appellant that such a process would result in impurities which would not be recognized by one of ordinary skill in this art or that could not be removed prior to actual application. Further, as noted by the examiner, the claims do not exclude the removal of pathological impurities from the L-fucose through additional purification steps. (Answer, page 7).

Appellant, additionally, argues that the process, presently claimed, satisfies a need in the art for a source of L-fucose produced by a process which employs inexpensive starting materials which results in a surprising and unexpected cost savings. (Brief, page 6). However, appellant has provided no evidence which would demonstrate a cost comparison between the presently claimed process and the processes which would reasonably be considered alternative sources of L-fucose. It is well settled that argument of counsel cannot take the place of evidence lacking in the record. In re Scarbrough, 500 F.2d 560, 566, 182 USPQ 298, 302 (CCPA 1974); In re Cole, 326 F.2d 769, 773, 140 USPQ 230, 233 (CCPA 1965).

With regard to the patentability of the subject matter of claim 15, appellant argues that "[a]n absence of suggestion in the cited prior art that a process will not work

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is not evidence of a motivating force which would impel a person skilled in the art to perform the process." (Brief, page 7). To the extent we understand appellant's position, we agree with the examiner that "motivation for omitting the intervening purification steps is based on the fact that the artisan of ordinary skill would have recognized that 'intervening purification steps are [not needed] . . . and moreover, the enzymes [present] would have been expected to catalyze their respective reactions regardless of whether the reactants were purified subsequent to each reaction step'" (Answer, page 9). Appellant has provided no evidence or pointed to no facts which would reasonably suggest otherwise.

Conclusion

When considered anew, we find, on balance, that the arguments presented by the appellant, taken as a whole, fail to outweigh the evidence of obviousness provided by the examiner. Newell Cos. v. Kenney Mfg. Co., 864 F.2d 757, 768, 9 USPQ2d 1417, 1426 (Fed. Cir. 1988), cert. denied, 493 U.S. 814 (1989); and In re Beattie, 974 F.2d 1309, 1313, 24 USPQ2d 1040, 1043 (Fed. Cir. 1992). Thus, the examiner has established a prima facie case of obviousness within the meaning of 35 U.S.C. § 103, which appellant has not overcome either by arguments or convincing evidence. Therefore, we affirm the rejection of claims 12 - 15 under 35 U.S.C. § 103.

Summary

The rejection of claims 12 - 15 under 35 U.S.C. § 103 as unpatentable over the combination of Liu, Green and Schweiger is affirmed.

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

AFFIRMED

Douglas W. Robinson)	
Administrative Patent Judge)	
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Toni R. Scheiner)	BOARD OF PATENT
Administrative Patent Judge)	APPEALS AND
)	INTERFERENCES
)	
)	
Demetra J. Mills)	
Administrative Patent Judge)	

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THE SCRIPPS RESEARCH INSTITUTE
10666 NORTH TORREY PINES ROAD
MAIL DROP TPC 8
LA JOLLA CA 92037