

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

Paper No. 46

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MAKOTO WAKABAYASHI, SATOSHI SUZUKI,
KENTARO KAWAMURA, HIROSHI OKADA
and KOJI MITSUKI

Appeal No. 2003-1018
Application No. 09/093,771

HEARD: OCTOBER 23, 2003

Before ADAMS, MILLS and GREEN, Administrative Patent Judges.

MILLS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. §134 from the examiner's final rejection of claims 1, 5-11, 14-16, 21 and 22, which are all of the claims pending in this application.

We reverse.

Claims 1 is illustrative of the claims on appeal and reads as follows:

1. A method of separating and isolating a lipid-rich lipid/protein complex from soybeans, comprising:

adding a substance having the ability to aggregate lipids with proteins selected from the group consisting of sodium chloride, potassium chloride and ammonium chloride in amounts from 0.05 to 0.5 M, to a water extract of soybeans, thereby producing a sedimenting or floating lipid-rich lipid/protein complex,

wherein the lipid content of the complex is at least 45% per aggregate;

isolating the sedimenting or floating lipid-rich lipid/protein complex; and wherein the weight ratio of lipid to protein of the isolated complex is at least 2-fold higher than the weight ratio of lipid to protein of the soybeans.

The prior art references relied upon by the examiner are:

Chayen	2,928,821	Mar. 15, 1960
Puski	4,697,004	Sept. 29, 1987
Yoshimura	5,670,624	Sept. 23, 1997

Grounds of Rejection

Claims 1, 5-11, 14-16, 21 and 22 stand rejected under 35 U.S.C. 103(a) as obvious over Chayen in view of Puski and Yoshimura.

DISCUSSION

In reaching our decision in this appeal, we have given consideration to the appellants' specification and claims, to the applied references, and to the respective positions articulated by the appellants and the examiner.

Rather than reiterate the conflicting viewpoints advanced by the examiner and the appellants regarding the noted rejections, we make reference to the examiner's Answer for the examiner's reasoning in support of the rejection, and to the appellants' Brief for the appellants' arguments thereagainst. As a consequence of our review, we make the determinations which follow.

35 U.S.C. 103

Claims 1, 5-11, 14-16, 21 and 22 stand rejected under 35 U.S.C. 103(a) as obvious over Chayen in view of Puski and Yoshimura.

In rejecting claims under 35 U.S.C. § 103, the examiner bears the initial burden of presenting a prima facie case of obviousness. See In re Rijckaert, 9 F.3d 1531, 1532, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993). A prima facie case of obviousness is established when the teachings from the prior art itself would appear to have suggested the claimed subject matter to a person of ordinary skill in the art. In re Bell, 991 F.2d 781, 783, 26 USPQ2d 1529, 1531 (Fed. Cir. 1993). An obviousness analysis requires that the prior art both suggest the claimed subject matter and reveal a reasonable expectation of success to one reasonably skilled in the art. In re Vaeck, 947 F.2d 488, 493, 20 USPQ2d 1438, 1442 (Fed. Cir. 1991). Thus, we analyze the prior art applied by the examiner in the rejection of the claims on appeal.

The examiner relies on Chayen for the disclosure of a method of making a protein-lipid complex from raw vegetable material comprising intruding the vegetable material into a hammermill in a liquid aqueous carrier wherein the liquid comprises water to which an alkalizing agent has been added. To alkalize the water Chayen employed sodium hydroxide, sodium carbonate or potassium carbonate. The use of soybeans as the vegetable material is described at column 4, line 32. Chayen also discloses that the proportion of lipid to protein is from 40-60% by weight of the lipid in the complex, which covers the 45% amount present in claim 1. Answer, page 4.

The examiner acknowledges that Chayen does not disclose that sodium chloride, potassium chloride and ammonium chloride may be used as the “substances to aggregate proteins.” Id. To make up for this deficiency in Chayen, the examiner relies on Yoshimura for the use of sodium chloride, potassium chloride and ammonium chloride as “substances to aggregate proteins.” Id.

The examiner summarizes (Answer, page 4):

It would have been obvious to one of ordinary skill in the art having the Chayen and Yoshimura [] patents before him to substitute the sodium hydroxide, sodium carbonate or potassium carbonate used in the Chayen patent with the sodium or potassium chloride of the Yoshimura [] patent since both set[s] of compounds contains [sic] an alkali metal and because Yoshimura [] shows that the sodium or potassium chloride is effective in promoting the aggregation of lipids with proteins.

Appellants argue the examiner has failed to set forth a prima facie case of obviousness based on the cited references. Brief, page 6. We agree.

Yoshimura is directed to the formation of protein which is two-dimensionally aggregated and fixed to produce a functional thin film. Abstract. In particular, a denatured film of a first protein is formed on the surface of a substrate solution such as an aqueous sugar or salt solution. A solution of a second protein, which may be the same or different from the first protein, is then injected below the surface of the substrate solution at a distance sufficient not to disturb the surface protein. The substrate solution has a higher surface tension and specific gravity than the second protein solution causing the second protein to float between the denatured protein film and the substrate solution surface to form the two-dimensionally aggregated solution and fixed protein. Id. In an alternative embodiment, Yoshimura describes the formation of a lipid monolayer on the surface of the substrate solution. In this embodiment, a protein solution is injected below the surface of the substrate solution and the protein floats between the substrate solution surface and the lipid mono-layer to form the two dimensionally aggregated and fixed protein. Id.

In the specific example set forth in Yoshimura, a two-dimensional film is formed of two layers of ferritin protein. The substrate solution used to form this film contains “dissolved glucose and salts (NaCl, KCl or the like).” Yoshimura, column 4, lines 1-4. More particularly, a substrate solution example contains glucose, NaCl, dimethylsulfoxide, poly(ethylene glycerol) and glycerol. Column 4, lines 38-61.

In our view, the examiner has not sufficiently indicated, and we do not find, a specific scientific or technological reason for one of ordinary skill in the art to substitute reagents of Yoshimura used in a substrate solution for the preparation of protein films using proteins such as ferritin (seemingly unrelated to soybean protein), as a basis or motivation for substitution for the aggregating agents of Chayen, which form a soybean protein/lipid complex having a particular ratio of lipid to protein. While the examiner finds both sets of compounds to be “aggregating agents”, in our view the examiner has failed to provide a sufficient scientific reason or nexus to support substitution of one reagent agent for another. For example, the examiner has failed to indicate why one of ordinary skill in the art would separate or select out only the salt component from the glycerol component of the substrate solution of Yoshimura and use it as a protein/lipid aggregating agent, and provide evidence in the prior art that the substance would still work for its intended purpose. Nor has the examiner shown a sufficient reason why one of ordinary skill in the art would expect that a portion of a substrate solution used to create a ferritin two-dimensional film, would be useful in forming a soybean protein/lipid complex.

“In proceedings before the Patent and Trademark Office, the Examiner bears the burden of establishing a prima facie case of obviousness based upon the prior art. “[The Examiner] can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references.” In re Fritch, 972

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F.2d 1260, 1265, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992) (citations omitted). An adequate showing of motivation to combine requires “evidence that ‘a skilled artisan, confronted with the same problems as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references for combination in the manner claimed.’” Ecolochem, Inc. v. Southern Calif. Edison Co., 227 F.3d 1361, 1375, 56 USPQ2d 1065, 1076 (Fed. Cir. 2000) (quoting In re Rouffet, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1456 (Fed. Cir. 1998)).

We do not find that the examiner has met his burden of putting forth sufficient “evidence that ‘a skilled artisan, confronted with the same problems as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references for combination in the manner claimed.’” Ecolochem, Inc. v. Southern Calif. Edison Co., 227 F.3d 1361, 1375, 56 USPQ2d 1065, 1076 (Fed. Cir. 2000).

It is well-established that before a conclusion of obviousness may be made based on a combination of references, there must have been a reason, suggestion, or motivation to lead an inventor to combine those references. Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc., 75 F.3d 1568, 1573, 37 USPQ2d 1626, 1629 (Fed. Cir. 1996) (citation omitted). Moreover, the prior art must also establish that one would have had a reasonable expectation of achieving the present invention, *i.e.*, a reasonable expectation of success. In re Vaeck, 947 F.2d 488, 493, 20 USPQ2d 1438,

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1442 (Fed. Cir. 1991). Both the suggestion and the reasonable expectation of success must be found in the prior art, **not in appellants' disclosure**. In re Dow Chem. Co., 837 F.2d 469, 473, 5 USPQ2d 1529, 1531 (Fed. Cir. 1988). [Emphasis added.]

Without a clearer indication from the examiner of where the prior art provides motivation for substituting the salts of the substrate solution of Yoshimura for the aggregating agents of Chayen, it would appear that the examiner has relied on appellant's disclosure for such motivation to combine the cited references.

We also acknowledge that appellants additionally argue that Chayen fails to mention whether a water filtrate is left behind after removal of the lipid-protein complex. Thus, appellants argue that Chayen “cannot suggest isolating proteins native to the raw vegetable material from the water filtrate when Chayen fails to even mention that proteins are present in the water filtrate.” Brief, page 4. However, we are not persuaded by this argument, as it pertains to claim limitations present in claim 21 and does not address the invention of claim 1.

We have carefully studied the arguments and evidence of record. On balance, we believe that the totality of the evidence presented by the examiner and appellants weighs in favor of finding the claimed invention non-obvious in view of the cited references. We find the examiner has not established on the record before us that the cited references both suggest the claimed subject matter and reveal a reasonable expectation of success to one reasonably skilled in the art. The rejection of the claims for obviousness of the claimed invention is reversed.

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CONCLUSION

The rejection of claims 1, 5-11, 14-16, 21 and 22 under 35 U.S.C. 103(a) as obvious over Chayen in view of Puski and Yoshimura. is reversed.

REVERSED

DONALD E. ADAMS)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
DEMETRA J. MILLS)	
Administrative Patent Judge)	APPEALS AND
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)	INTERFERENCES
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LORA M. GREEN)	
Administrative Patent Judge)	

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