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BEFORE THE PATENT TRIAL AND APPEAL  
BOARD

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*Ex parte* ATSUHITO KOUMOTO,  
TAKASHI KAMADA, and TOMOMI OHARA

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Appeal 2011-012467  
Application 11/869,568  
Technology Center 1700

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Before ANDREW H. METZ, ROMULO H. DELMENDO, and  
GEORGE C. BEST, *Administrative Patent Judges*.

METZ, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134 from the Examiner's decision rejecting claims 1 through 9 and 13 through 18. Claims 10 through 12, the only other claims remaining in the application, are claims directed to a previously non-elected invention pursuant to a requirement for restriction in which election of the subject matter of claims 1 through 9 and 13 through 18 was made without traverse. Accordingly, claims 10 through 12 stand withdrawn from consideration and form no issue in this appeal. 37 C.F.R. § 1.142(b). We have jurisdiction under 35 U.S.C. § 6.

We REVERSE.

THE INVENTION

Appellants disclose a method for preparing a dried composite semipermeable membrane comprising a porous support layer having a skin layer on one surface of the support layer, the method comprising: washing the composite membrane; treating the washed composite membrane only on the porous support side of the composite membrane by contacting the porous support side with a solution including a moisturizer and a hydrophilization agent; and treating the washed composite membrane only on the skin layer side by contacting the skin layer side with a protecting solution and drying the washed, treated composite semipermeable membrane. Useful moisturizing agents include alkali metal salts of organic acids such as acetic, lactic, and glutamic acid (Spec. [0018]); inorganic acid metal salts of alkali metals (*id.* at [0019]); and surfactants and alcohols (*id.* at [0076-0077]). Useful hydrophilization agents include alcohols and surfactants (*id.* at [0076]) such as sodium lauryl sulfate, sodium alkylbenzene sulfonate, monohydric alcohols,

and polyhydric alcohols (*id.* at [0077]). Useful protecting agents for application to the skin layer include polyvinyl alcohols, saponified polyethylene-vinyl acetate copolymers, polyvinyl pyrrolidones, hydroxypropyl cellulose, and polyethylene glycols. (*Id.* at [0084]).

Claim 1 is believed to be adequately representative of the appealed subject matter and is reproduced below for a more facile understanding of the claimed invention.

1. A process for producing a dried composite semipermeable membrane comprising:

a porous support; and

a skin layer including a polyamide resin obtained by reaction between a polyfunctional amine component and a polyfunctional acid halide component formed on a surface of the porous support, wherein a first surface of the composite semipermeable membrane contains the skin layer and a second surface of the composite semipermeable membrane contains the porous support;

preparing a washed composite semipermeable membrane by washing the composite semipermeable membrane;

preparing a treated composite semipermeable membrane by contact of a moisturizing solution including a moisturizer and a hydrophilization agent only to the second surface of the washed composite semipermeable membrane and by contact of a protecting solution only to the first surface the washed composite semipermeable membrane; and

drying the treated composite semipermeable membrane.

The reference of record which is being relied on by the Examiner as evidence of obviousness is:

Hachisuka et al. (Hachisuka) US 6,413,425 B1 July 2, 2002

THE REJECTIONS

Claims 1 through 9 and 13 through 18 stand rejected under 35 U.S.C. § 103(a) as the claimed subject matter would have been obvious from the disclosure of Hachisuka.<sup>1</sup>

Claims 1 through 9 stand provisionally rejected on the ground of non-statutory obviousness-type double patenting as being unpatentable over claims 1 through 10 of co-pending U.S. Application Number 12/606,518 in view of Hachisuka.

Claims 1 through 9 stand provisionally rejected on the ground of non-statutory obviousness-type double patenting as being unpatentable over claims 1 through 14 of co-pending U.S. Application Number 12/728,347 in view of Hachisuka.

Claims 1 through 9 stand provisionally rejected on the ground of non-statutory obviousness-type double patenting as being unpatentable over claims 3 through 13, 15-17, and 22 through 27 of co-pending U.S. Application Number 11/664,371 in view of Hachisuka.

Claims 1 through 9 stand provisionally rejected on the ground of non-statutory obviousness-type double patenting as being unpatentable over claims

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<sup>1</sup> Claim 2 is directed to “A dried semipermeable membrane obtained by the producing process according to claim 1.” Thus, claim 2 is a claim to a product not a process. In view of the Examiner’s requirement for restriction between the product and process of making the process and Appellants’ election of the process claims without traverse claim 2 is a claim directed to an invention previously not elected and should have been withdrawn from consideration.

2 through 4, 5 through 7, and 9 through 14 of co-pending U.S. Application Number 11/664,254 in view of Hachisuka.

OPINION

We have carefully considered the entire record before us, including the arguments made by the Appellants and the Examiner in support of their respective positions. For reasons that follow, we find the Examiner has failed to make out a *prima facie* case of obviousness.

We agree with the Examiner that Hachisuka describes the preparation of a membrane comprising a porous support including a skin layer thereon and wherein the skin layer is prepared by the reaction between a polyfunctional amine component and a polyfunctional acid halide component. Hachisuka also discloses polysulfones to be useful porous supports. In Example 1, Hachisuka describes forming a polyamide resin coating on the surface of a microporous sulfone support by interfacial surface reaction of m-phenylenediamine with trimesic acid chloride and then washing the thus prepared semipermeable membrane having a polyamide skin layer. Column 6, lines 10 through 25 and column 8, lines 6 through 8. We also find that Hachisuka also describes preparing a polyvinyl alcohol layer on the skin layer of a membrane thus prepared. *See* Fig. 1; column 7, lines 41 through 47 and column 8, lines 15 through 31. Nevertheless, and contrary to the Examiner's representation that Hachisuka describes in Example 1 contacting only the porous support side of the composite with a moisturizer and a hydrophilization agent, we find no such disclosure in the description of Example 1.

In the first instance, as we have stated above, Example 1 in Hachisuka describes forming a polyamide resin skin layer on a polysulfone by interfacial surface reaction between a first coating of a solution of m-phenylenediamine

with a subsequent coating of a solution of trimesic acid chloride. Thus, whatever the purpose served by the presence of 0.15 wt % sodium lauryl sulfate in the amine solution used in the first coating solution of Example 1, it cannot be as a moisturizer or hydrophilization agent for contacting the skin layer because at that point of the process in Example 1 the skin layer of the composite membrane has not yet been formed. Additionally, the Examiner has failed to explain the basis for her conclusion that sodium lauryl sulfate acts as both a moisturizer and a hydrophilization agent in Hachisuka's Example 1. Indeed, we find absolutely no mention anywhere in Hachisuka's disclosure of using any hydrophilization agent or moisturizer for any purpose in their invention, let alone for coating only the porous support layer after drying the washed semipermeable membrane.

Recognizing that Hachisuka "does not explicitly disclose that the moisturizing solution is applied to porous support of the washed composite semipermeable membrane" (Ans. 4), the Examiner pronounces that the selection of any order of performing the disclosed steps would have been prima facie obvious in the absence of new or unexpected results and cites to three cases cited in the M.P.E.P. § 2144(IV)(C) in support of her argument. Two of the three decisions on which the Examiner has relied pre-date the 1952 act that created § 103 and the requirement that in addition to a novelty requirement for patentability, claims also had to be non-obvious as determined at the time an applicant for patent made her invention. Thus, the precedential value of those pre-1952 act decisions to the issue before us, the "obviousness" of the claimed subject matter, is not apparent to this panel. Relying on case law decided under different statutes and based on facts different from the facts here in an attempt to provide facts missing from the Examiner's evidence of obviousness does not

make out a *prima facie* case of obviousness. Finally, a showing of new or unexpected results is not required where, as here, the Examiner has failed to make out a *prima facie* case of obviousness.

A comparison of Appellants' claims with the disclosure of Hachisuka reveals more than merely a change in the order of performing the steps of Hachisuka's process would be required to suggest the subject matter claimed by Appellants. The process claimed by Appellants begins with a porous support (the second surface) having a skin layer (the first surface) deposited thereon. Appellants' first process step comprises washing the starting semipermeable membrane. We agree with the Examiner that Hachisuka describes these process steps. However, after the washing step, Appellants' method requires treating only the porous support side of the membrane by contacting only the porous support side with a solution including a moisturizer and a hydrophilization agent and also treating only the skin layer side with a "protecting solution." After treating only each side with the solutions specified in the claims, Appellants dry the thus-treated membrane. The Examiner has not explained how performing the process steps of Hachisuka in a different order would have suggested the process claimed by Appellants. Suffice it to say we find performing the steps of Hachisuka in a different order would not have suggested the claimed process.

Accordingly, for all the above reasons, the rejection of the claims under 35 U.S.C. § 103(a) is reversed.

#### THE OBVIOUSNESS-TYPE DOUBLE PATENTING REJECTIONS

Two of the Examiner's obviousness-type double patenting rejections are founded on applications that have become abandoned. In Application Number

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11/664,254, the application became abandoned for failure to file a proper timely reply to the Office Action mailed on August 24, 2009. In Application Number 11/664,371, the application became abandoned for failure to file a proper timely reply to the Office Action mailed on August 20, 2010. Accordingly, the rejections founded on these applications are rendered moot.

In her statement of the rejections, the Examiner has not undertaken an analysis of what is required by claim 1 from each of the copending applications and made a comparison of what is claimed therein with what the claims here on appeal require. Thus, the Examiner has failed to determine the differences between the claimed invention and what is claimed in the copending applications and explained why the differences between what is claimed here and the claims in the copending applications would have been obvious to the hypothetical person of ordinary skill in the art at the time Appellants made their invention.

We recognize that the Examiner has stated on page 6 of her Answer that the “copending applications fail to disclose that the skin layer is selectively treated with a protective agent” and that she relies on Hachisuka for the purpose of showing selective coating of a skin layer with a protective agent. However, the differences between what Appellants claim here and what is claimed in the copending applications constitutes more than simply the selective treatment of the skin layer with a protective agent. The Examiner has failed to explain how the applications relied on that do not require Appellants’ treatment steps on opposite sides of the semipermeable membrane would have rendered the claimed subject matter obvious even in light of Hachisuka’s disclosure. Further, because we have already rejected the Examiner’s rationale for finding that the subject matter of claim 1 in this appeal would have been obvious in the sense of

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the statute we reject it again here for the same reasons. We express no opinion here as to whether an obviousness-type double patenting rejection would be appropriate if any of the claims in the copending applications have been amended.

Accordingly, we reverse each of the two obviousness-type double patenting rejections.

The decision of the Examiner is reversed.

REVERSED

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