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Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO.
14/096,289 12/04/2013 Gregory S. CARPENTER 712450 3333

23548 7590 01/29/2019
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700 THIRTEENTH ST. NW
SUITE 300
WASHINGTON, DC 20005-3960

Table with 1 column: EXAMINER

MCCULLOUGH, ERIC J.

Table with 2 columns: ART UNIT, PAPER NUMBER

1773

Table with 2 columns: NOTIFICATION DATE, DELIVERY MODE

01/29/2019

ELECTRONIC

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte GREGORY S. CARPENTER, MUNAF TINWALA,
and STANLEY W. KIDD

Appeal 2018-003637
Application 14/096,289
Technology Center 1700

Before TERRY J. OWENS, JAMES C. HOUSEL and
CHRISTOPHER C. KENNEDY, *Administrative Patent Judges*.

OWENS, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

The Appellant (Pall Corporation) appeals under 35 U.S.C. § 134(a) from the Examiner's rejection of claims 1–20. We have jurisdiction under 35 U.S.C. § 6(b).

The Invention

The claims are to a microporous polymeric membrane, a method for making the membrane, and a method for using the membrane to remove undesirable material from a fluid. Claim 1, which claims the membrane, is illustrative:

1. A microporous polymeric membrane comprising
 - (a) a first surface, comprising a microporous surface,

- (b) a second surface comprising a microporous surface;
and
(c) a microporous bulk between the first surface and the second surface;
wherein the membrane has a machine direction and a cross machine direction, and the first surface has a plurality of parallel channels in the machine direction, wherein the channels have side walls and bottom walls, the side walls comprising rough surfaces, the rough surfaces having an Ra in the range of from about 4.5 μm to about 19.0 μm .

The References

Antoniou	US 6,365,395 B1	Apr. 2, 2002
Harttig	US 2003/0121841 A1	July 3, 2003
Wilson	EP 0 259 109 A2	Mar. 9, 1988
Salinaro	WO 01/61042 A2	Aug. 23, 2001

S.S. Madaeni, *Effect of Surface Roughness on Retention of Reverse Osmosis Membranes*, 11 J. Porous Materials 255–63 (2004) (hereinafter Madaeni).

Colin Hobbs et al., *Effect of surface roughness on fouling of RO and NF membranes during filtration of a high organic surficial groundwater*, J. Water Supply: Res. & Tech. – AQUA 559–70 (2006) (hereinafter Hobbs).

The Rejections

The claims stand rejected under 35 U.S.C. § 103(a) as follows: claims 1–11, 13, 14, and 16–20 over Wilson in view of Salinaro, Madaeni, and Hobbs; claim 12 over Wilson in view of Salinaro, Madaeni, Hobbs, and Antoniou; and claim 15 over Wilson in view of Salinaro, Madaeni, Hobbs, and Harttig.

OPINION

We reverse the rejections. We need address only the independent claims (1, 11, 15). Those claims require membrane channel sidewall surface

roughness Ra of about 4.5 μin to about 19.0 μin . To meet that claim requirement the Examiner relies upon the combined disclosures of Wilson, Salinaro, Madaeni, and Hobbs (Ans. 3–9).

Wilson discloses a polymeric porous membrane having spaced grooves about 0.5–100 mils wide and deep on its surface (p. 7, ll. 47–50, 54–58; p. 10, ll. 8–9).

Salinaro discloses a polymeric smooth porous membrane having a surface roughness average (Ra) less than about 800 nm (31.5 μin) (p. 4, ll. 3, 23–24; p. 5, ll. 6–8).

Madaeni discloses two polymeric thin film composite membranes, one having a smooth surface and the other having a rough surface (Abstract).

Hobbs discloses a polymeric thin film composite membrane having a rough surface (Abstract).

The Examiner finds that 1) Salinaro, Madaeni, and Hobbs indicate that membrane surface roughness is a result effective variable, and 2) “membrane sidewalls (and bottom) are membrane filtration surfaces” (Ans. 5, 11). The Examiner states that “Salinaro, Madaeni and Hobbs are relied upon only as evidence that it would have been obvious to *optimize* the roughness, not to use their specific, stated roughness” (Ans. 11).

The Examiner does not establish that the applied references would have indicated to one of ordinary skill in the art that membrane channel sidewall surface roughness is a result effective variable or would have led such a person to a membrane channel side wall surface roughness Ra within the range required by the Appellant’s claims.

Thus, the Examiner has not set forth a factual basis sufficient to support a conclusion of obviousness of the Appellant’s claimed invention.

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See In re Warner, 379 F.2d 1011, 1017 (CCPA 1967) (“A rejection based on section 103 clearly must rest on a factual basis, and these facts must be interpreted without hindsight reconstruction of the invention from the prior art.”). Accordingly, we reverse the rejections.

DECISION

The rejections under 35 U.S.C. § 103(a) of claims 1–11, 13, 14, and 16–20 over Wilson in view of Salinaro, Madaeni, and Hobbs; claim 12 over Wilson in view of Salinaro, Madaeni, Hobbs; and Antoniou, and claim 15 over Wilson in view of Salinaro, Madaeni, Hobbs, and Harttig are reversed.

The Examiner’s decision is reversed.

REVERSED