UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/560,732	12/15/2005	Felipe Martinez	63190A	3731

109 7590 01/24/2013
The Dow Chemical Company
P.O. BOX 1967
2040 Dow Center
Midland, MI 48641

EXAMINER
YAGER, JAMES C

ART UNIT	PAPER NUMBER
1782	

NOTIFICATION DATE	DELIVERY MODE
01/24/2013	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

FFUIMPC@dow.com

UNITED STATES PATENT AND TRADEMARK OFFICE
PATENT TRIAL AND APPEAL BOARD

Ex parte DOW GLOBAL TECHNOLOGIES LLC
(Application 10/560,732)

Appeal 2011-013238
from Technology Center 1700
James C. Yager, Examiner

HEARD: 15 January 2013

Before RICHARD TORCZON, MICHAEL P. COLAIANNI and GRACE KARAFFA OBERMANN, *Administrative Patent Judges*.

TORCZON, *Administrative Patent Judge*.

DECISION ON APPEAL

The appellant (Dow) seeks relief from the final rejection of claims 1-6, 8, 9, 11-14, 17, 18 and 20-22. We REVERSE.

OPINION

BACKGROUND

Dow discloses "thin foamed polyethylene sheets, particularly those at gauges between 1 and 10 mils."[1] Claim 1, one of two independent claims, defines the invention as follows:[2]

> A blown film consisting of one or more foamed polyolefin sheets
> wherein at least one foamed polyolefin sheet is 3 to 8 mils thick and
> has an MD tear strength[3] of at least 150 g/mil
> wherein the sheet is made from a blend comprising
> 10-90 percent by weight LLDPE [linear low density polyethylene[4]] and
> 90-10 percent LDPE [low density polyethylene[5]] and
> wherein the LLDPE has a density in the range of 0.900 to 0.930 g/cc and
> an MI [melt index[6]] in the range of from 2 to 6 g/l0min;
> wherein the at least one foamed polyolefin sheet has a density reduction of from 10 to 50 percent compared to a non foamed sheet of the same composition.

Claim 17 is similar, but defines a polyethylene sheet that is less than 3 mils thick with a MD tear strength of at least 50 g/mil.

The examiner rejected all of the pending claims as having been obvious to a person having ordinary skill in the art[7] as shown in the combined disclosures of

---

[1] Spec. 1:2-3. We note that a mil is a unit ($^1/_{1000}$ of an inch) used for measuring films.
[2] Br. 19 (Apdx. A). We rely on the claims as they appear in the claims appendix. Indenting has been added consistent with 37 C.F.R. § 1.75(i).
[3] We note that "MD" means machine direction. See Spec. 12:8-9 (specifying ASTM D 1922 Elmendorf type method for measuring MD tear strength).
[4] Spec. 2:23.
[5] Spec. 3:23-24.
[6] Spec. 2:24.

patents to DeVaudreuil[8] and Heider.[9] The examiner additionally rejected claims 12 and 21 on a second basis—that they would have been obvious over the disclosures of the same combination plus[10] a Hughes patent.[11]

FACTS AND FINDINGS

[1] DeVaudreuil discloses a foam that is about 1 to about 90 weight percent LLDPE, with the remainder (i.e., 10 to about 99 weight percent) being essentially a resiliency modifier resin, preferably LDPE; most preferably from about 20 to about 45 weight percent LLDPE and from about 55 to about 80 weight percent resiliency modifier resin.[12]

[2] The LLDPE has a specific gravity of about 910 to about 940 kg/m^3.[13]

We note that 910 and 940 kg/m^3 are equivalent to 0.91 and 0.94 g/cc, respectively. Compare these to the claim limitation that "the LLDPE has a density in the range of 0.900 to 0.930 g/cc".

[3] DeVaudreuil discloses a variety of melt flow indices for LLDPE using different tests, but states that it generally has a melt flow index of less than about 10 dg/min, preferably less than about 3 dg/min.[14]

---

[7] Final Rej. 3, citing 35 U.S.C. 103.
[8] M.D. DeVaudreuil et al., *Foam and film/foam laminates using linear low density polyethylene*, U.S. Pat. 6,114,025 (2000).
[9] J.E. Heider, *Foamed low density polyethylene sheet material and carrier*, U.S. Pat. 4,360,556 (1982).
[10] Final Rej. 6.
[11] R.E. Hughes & M.J. Conway, *Apparatus for making foam plastic pipe*, U.S. Pat. 3,963,403 (1976).
[12] DeVaudreuil 1:60-2:4.
[13] *Id*. 3:60-64.
[14] *Id*. 4:3-12.

We note that 3 and 10 dg/min equals 3 and 10 g/10min, respectively. Compare these to the claim limitation of "an MI in the range of from 2 to 6 g/l0min".

[4] The foam is less than about 13 mm, preferably about 0.5 to about 13 mm.[15]

[5] The examiner found that the disclosed thickness ranges overlap the claimed ranges.[16]

We note that 0.5 and 13 mm are about 20 and 512 mil, respectively. Compare these to the claim 1 limitation "3 to 8 mils thick" and claim 17 limitation "less than 3 mils thick".

[6] DeVaudreuil teaches a variety of MD tear strengths, generally more than about 0.65 kN/m, most preferably more than 1.25 kN/m, and possibly greater than 2.00 kN/m.

[7] DeVaudreuil example 14 in Table 1 gives an MD tear strength of 4.26 kN/m.[17]

[8] The examiner does not contest Dow's conversion of 2.00 kN/m and 4.26 kN/m to 6.11 g/mil and 13.01 g/mil, respectively[18] (compared to the claimed MD tear strength of at least 150 g/mil in claim 1 and 50 g/mil in claim 17).

[9] The examiner found that a DeVaudreuil foam modified as taught in Heider and made to the claimed thickness and density would have the same MD tear strength as the claimed foam because the constituents of the foam would be the same.[19]

---

[15] *Id*. 7:1-8.
[16] Final Rej. 3.
[17] DeVaudreuil 19:all-20:all (Table 1).
[18] Br. 12.
[19] Ans. 6.

[10] The examiner found that DeVaudreuil does not disclose the claimed density reduction of from 10 to 50 percent compared to a non foamed sheet of the same composition.[20]

[11] DeVaudreuil's foams may be used for protective packaging of heavy, delicate and valuable items (such as furniture, computers and televisions, glassware and any article needing protection from gouging, scratching and marring) and for insulation, flotation (e.g., in life jackets) and components in toys and other recreational items.[21]

[12] The examiner states that DeVaudreuil is not limited to protective furniture covering, but finds that a DeVaudreuil foam of the claimed thicknesses would function as protective packaging to protect from scratches.[22]

[13] Heider discloses a composition for foamable sheet material that can be made into carriers for cylindrical containers.[23]

[14] Heider teaches that the composition "provides a lightly foamed sheet material which yields approximately 10 to 20 percent reduction in density over unfoamed sheet material, without a corresponding percentage reduction in properties."[24]

[15] Heider teaches that density may be reduced some without a corresponding loss of function "by introducing a blowing agent and mineral oil into the composition."[25]

---

[20] Final Rej. 3-4.
[21] DeVaudreuil 1:20-23; 6:55-62.
[22] Ans. 9.
[23] Heider 1:9-12.
[24] *Id.* 1:66-2:2.
[25] *Id.* 2:64-65.

[16] Dow characterizes Heider as teaching "six pack rings", citing Heider at column 1, lines 11-12 ("material may be fabricated into carriers, for attachment to cylindrical containers").[26]

Heider does not mention six-pack rings.

[17] Heider compares his invention to paper carriers.[27]

The comparison to paper carriers suggests that Heider's teachings are not limited to six-pack rings.

[18] Heider refers to two patents in discussing carriers for cylindrical containers.[28]

We note that the second patent discloses plastic six-pack rings.[29] It is not clear how the first patent relates to six-pack rings.[30] We find that Heider appears to be directed to protective packaging for packaged items more broadly than just six-pack rings.

[19] The examiner relies on Hughes to teach a low land-length to die-gap ratio to prevent foaming upstream of an outlet.[31]

ANALYSIS

The examiner reasons that a person having ordinary skill in the art would have had reason to modify a DeVaudreuil foam to reduce its density to attain the advantages that Heider teaches. A DeVaudreuil foam so modified would

---

[26] Br. 14.
[27] Heider 1:20-22.
[28] *Id*. 2:6-17.
[29] W.N. Weaver, *Multiple container carrier and package*, U.S. Pat. 3,874,502 (1975).
[30] D.L. Mawson & B. Malone, *Molding box comprising pattern frame having internal lining strips*, U.S. Pat. 3,773,100 (1973).
[31] Final Rej. 6.

necessarily have the properties that Dow claims.[32] The teaching to modify a DeVaudreuil foam according to Heider's suggestion is reasonable, but it does not follow that the foam would meet the claimed properties. One would have to pick and choose from DeVaudreuil's teachings to obtain the claimed limits and ranges. On this record, the picking and choosing appears to be circular: the resulting foam would meet the claimed values if it were made using the values in the claim.

A certain amount of hindsight is necessary in patent examination because knowledge of the claim is needed to know how to focus the examination.[33] There is nothing necessarily wrong with picking and choosing from within narrow ranges or with sufficient suggestion in the art that doing so would be fruitful;[34] however, doing so with many parameters where possible results are very numerous, particularly with an open-ended range,[35] will tend to make a rejection less tenable. Certainly a retrospective view of inherency cannot substitute for a teaching or suggestion supporting the rejection.[36] We do not see sufficient guidance in DeVaudreuil and Heider to lead to the precise ranges that Dow claims.

The rejection using Hughes assumes the sufficiency of the DeVaudreuil and Heider combination. The examiner has not represented Hughes as an alternative basis for the suggestion lacking in DeVaudreuil.

---

[32] E.g., Ans. 5-6.
[33] *In re McLaughlin*, 443 F.2d 1392, 1395 (CCPA 1971).
[34] *In re Peterson*, 315 F.3d 1325, 1330 n.1 (Fed. Cir. 2003) (comparing situations where ranges might or might not indicate routine experimentation).
[35] *See, e.g., MagSil Corp. v. Hitachi Global Storage Techs., Inc.*, 687 F.3d 1377, 1383 (Fed. Cir. 2012) (enablement failure resulting from unbounded range).
[36] *McLaughlin*, 443 F.2d at 1395; *In re Newell*, 891 F.2d 899, 901 (Fed. Cir. 1989).

HOLDING

Dow has demonstrated prejudicial error on the record before us in the rejection of claims 1-6, 8, 9, 11-14, 17, 18 and 20-22 and in the rejection of claims 12 and 21. The rejections are—

REVERSED

For the appellant: JAMES T. HOPPE, The Dow Chemical Company, of Midland, Michigan.

sld