

Legal Trends Regarding Ranges and Anticipation



Jean C. Witz
Quality Assurance Specialist
Technology Center 1600



During Examination

- Anticipation is considered when
 - An embodiment in the prior art falls within a claimed range
 - Prior art teaches a range overlapping or touching a claimed range

MPEP 2131.03



Genus-Species Relationships

- Disclosure of a Species Anticipates a Claim to a Genus
 - *In re Slayter*, 276 F.2d 408, 125 USPQ 345 (CCPA 1960)
 - *In re Gosteli*, 872 F.2d 1008, 10 USPQ2d 1614 (Fed. Cir. 1989)
 - *Ex parte A*, 17 USPQ2d 1716 (BPAI 1990)
- Number of other species disclosed is immaterial
- Whether or not the species is preferred is immaterial



Genus-Species Relationships

- *In re Petering*, 301 F.2d 676, 133 USPQ 275 (CCPA 1962)
 - Generic claim was anticipated by prior art patent disclosing generic formula due to substituent preferences which effectively reduced the members of the genus to those that could be “at once envisage[d]” by one skilled in the art.



Genus-Species Relationships

- *In re Petering*, 301 F.2d 676, 133 USPQ 275 (CCPA 1962)
 - “A simple calculation will show that, excluding isomerism within certain of the R groups, the limited class we find in Karrer contains only 20 compounds.”
 - “However, we wish to point out that it is not the mere number of compounds in this limited class which is significant here but, rather, the total circumstances involved, including such factors as the limited number of variations for R, only two alternatives for Y and Z, no alternatives for the other ring positions, and a large unchanging parent structural nucleus.”
 - “With these circumstances in mind, it is our opinion that Karrer has described to those with ordinary skill in this art each of the various permutations here involved as fully as if he had drawn each structural formula or had written each name.”



Embodiment in the prior art falls within a claimed range

- *Titanium Metals v. Banner*, 301 F.2d 676, 133 USPQ 275 (CCPA 1962)
 - Claim to a titanium alloy consisting essentially by weight of about 0.6%-0.9% Ni, 0.2%-0.4% Mo, up to 0.2% Fe and the balance Ti was anticipated by prior art disclosing a titanium alloy containing 0.75% Ni and 0.25% Mo
 - Court cites *In re Petering* as authority



Genus-Species Relationships

- *In re Schauman*, 572 F.2d 312, 197 USPQ 5 (CCPA 1978)
 - Disclosure of genus of compounds in the prior art used to reject claim to a specific peripheral blood pressure increasing compound
 - Court distinguishes *In re Petering* but still finds that genus anticipated the claimed compound



Prior art teaches a range overlapping or touching a claimed range

- *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990)
 - Rejection affirmed was made under 35 USC 103 instead of 35 USC 102

Claims 27 and 31	Prior Art
Method for inhibiting the growth of fungi on fresh leafy and head vegetables	Method of storing fresh leafy and head vegetables in order to maintain their fresh appearance
0-2% CO ₂	0-5% CO ₂
1-20% O ₂	1-10% O ₂
3-25% CO / >5-25% CO	1-5% CO
Balance N ₂	Balance N ₂
29-60° F	32-40° F



Prior art teaches a range overlapping or touching a claimed range

- Federal Circuit held
 - There were two differences between the claimed invention and the prior art:
 - the slightly different ranges of carbon monoxide concentration used in the modified atmosphere; and
 - the newly disclosed benefit of inhibiting the growth of fungi



Prior art teaches a range overlapping or touching a claimed range

- Federal Circuit held
 - With regard to the new benefit, the general rule that discovering a new benefit for an old process is applicable in this case to the extent that the claims and the prior art overlap
 - what Woodruff terms as a “new use” (preventing fungal growth) is at least generically encompassed by the prior art purpose of preventing the deterioration of leafy and head vegetables.



Prior art teaches a range overlapping or touching a claimed range

- Federal Circuit held
 - Patentability cannot be found in the difference in carbon monoxide ranges recited in the claims.
 - Case law in which the difference between the claimed invention and the prior art is a range or other variable within the claims have consistently held that in such a situation, the applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range.



Prior art teaches a range overlapping or touching a claimed range

- *Atofina v. Great Lakes Chemical Corporation*, 441 F.3d 991, 78 USPQ2d 1417 (Fed. Cir. 2006)
 - Atofina sued Great Lakes for infringement of a method for synthesizing difluoromethane
 - Patent claims required the presence of 0.1–5 moles oxygen per 100 moles methylene chloride at a temperature of between 330 and 450 degrees C



Prior art teaches a range overlapping or touching a claimed range

- *Atofina v. Great Lakes Chemical Corporation*, 441 F.3d 991, 78 USPQ2d 1417 (Fed. Cir. 2006)
 - Great Lakes synthesized difluoromethane in the presence of 1.1–1.2 moles of oxygen per 100 moles of methylene chloride at a temperature of 150–350 degrees C



Prior art teaches a range overlapping or touching a claimed range

Atofina Patent	JP 51-82206
0.1 – 5 m O ₂ /100 moles CH ₂ Cl ₂	0.001 – 1.0 m O ₂ /100 moles CH ₂ Cl ₂
At a temperature of 330 – 450°C	At a temperature of 100 – 500°C

- Great Lakes argued that the ranges of oxygen to methylene chloride and temperature disclosed in JP 51-82206 encompassed and therefore anticipated the limitations in the Atofina patent
- District Court relied on *Titanium Metals* to support a finding of anticipation of the Atofina patent by JP 51-82206
- Federal Circuit disagreed and reversed the decision, finding the Atofina patent valid and infringed, distinguishing the facts from those in *Titanium Metals*



Prior art teaches a range overlapping or touching a claimed range

- Federal Circuit held
 - “*Titanium Metals* stands for the proposition that an earlier species reference anticipates a later genus claim, not that an earlier genus anticipates a narrower species.”
 - “Here, the prior art, JP 51-82250, discloses a temperature range of 100 to 500C which is broader than and fully encompasses the specific temperature range claimed in the '514 patent of 330 to 450C.
 - “Given the considerable difference between the claimed range and the range in the prior art, no reasonable fact finder could conclude that the prior art describes the claimed range with sufficient specificity to anticipate this limitation of the claim.”



Prior art teaches a range overlapping or touching a claimed range

- Federal Circuit held

- “JP 51-82206 discloses a preferred temperature range of 150 to 350C that slightly overlaps the temperature range claimed in the '514 patent. But that slightly overlapping range is not disclosed as such, i.e., as a species of the claimed generic range of 330 to 450C.”
- “Moreover, the disclosure of a range of 150 to 350C does not constitute a specific disclosure of the endpoints of that range, i.e., 150C and 350C, as Great Lakes asserts. The disclosure is only that of a range, not a specific temperature in that range, and the disclosure of a range is no more a disclosure of the end points of the range than it is of each of the intermediate points. Thus, JP 51-82206 does not disclose a specific embodiment of the claimed temperature range.”



Prior art teaches a range overlapping or touching a claimed range

- Federal Circuit held
 - “Moreover, the disclosure of a 0.001 to 1.0 percent range in JP 51-82206 does not constitute a specific disclosure of 0.1 percent to 5.0 percent, as Great Lakes asserts. Once again, although there is a slight overlap, no reasonable fact finder could determine that this overlap describes the entire claimed range with sufficient specificity to anticipate this limitation of the claim. The ranges are different, not the same.”



Prior art teaches a range overlapping or touching a claimed range

- *ClearValue v. Pearl River Polymers*, 668 F.3d 1340, 101 USPQ2d 1773 (Fed. Cir. 2012)
 - ClearValue accused Pearl River of infringement of U.S. Patent 6,120,690
 - Jury found ClearValue patent valid and infringed
 - Federal Circuit found that verdict was not supported by substantial evidence and reversed



Prior art teaches a range overlapping or touching a claimed range

- *ClearValue v. Pearl River Polymers*, 668 F.3d 1340, 101 USPQ2d 1773 (Fed. Cir. 2012)
 - A process for clarifying water of raw alkalinity less than or equal to 50 ppm
 - by adding and blending at least one aluminum polymer include at least an effective amount of ACH
 - with a high molecular weight quaternized ammonium polymer comprising DADMAC having a molecular weight of at least approximately 1,000,000 to approximately 3,000,000



Prior art teaches a range overlapping or touching a claimed range

- *ClearValue v. Pearl River Polymers*, 668 F.3d 1340, 101 USPQ2d 1773 (Fed. Cir. 2012)
 - U.S. Patent 4,800,039 to Hassick was asserted by Pearl River to anticipate the claimed method
 - Hassick taught the use of high molecular weight DADMAC with ACH reduces turbidity in low-alkalinity systems



Prior art teaches a range overlapping or touching a claimed range

ClearValue Claim	Hassick Patent
1-3 million MW DADMAC	1-2 million MW DADMAC
ACH	ACH
To clarify water with alkalinity of 50 ppm or less	To clarify water with alkalinity of 150 ppm or less



Prior art teaches a range overlapping or touching a claimed range

- *ClearValue v. Pearl River Polymers*, 668 F.3d 1340, 101 USPQ2d 1773 (Fed. Cir. 2012)
 - ClearValue argued that the broader range of 150 ppm or less did not anticipate the smaller range of 50 ppm or less
 - In support, ClearValue cited *Atofina v. Great Lakes*



Prior art teaches a range overlapping or touching a claimed range

- Federal Circuit distinguished *Atofina* for several reasons
 - The *Atofina* patent disclosed that the claimed narrower range was critical to the success of the practice of the claimed method
 - Comparative examples in the *Atofina* patent support this conclusion, showing that a temperature of 300 did not allow the synthesis reaction to operate as claimed
 - Combined with the evidence disclosed above and the considerable difference between the claimed *Atofina* range and the prior art range, a finding of anticipation was precluded



Prior art teaches a range overlapping or touching a claimed range

- Federal Circuit distinguished *Atofina* for several reasons
 - “We explained that the prior art’s teaching of a broad genus (i.e. broad temperature range) does not disclose every species in that genus. In *Atofina*, the evidence showed that one of ordinary skill would have expected the synthesis process to operate differently outside the claimed temperature range, which the patentee described as ‘critical’ to enable the process to operate effectively. Based on this ‘considerable difference’ between the prior art’s broad disclosure and the ‘critical’ temperature range claimed in the patent, we held that ‘no reasonable fact finder could conclude that the prior art describes the claimed range with sufficient specificity to anticipate this limitation of the claim.’”



Prior art teaches a range overlapping or touching a claimed range

- Federal Circuit points to the following basis for concluding anticipation in ClearValue
 - ClearValue did not argue that the 50 ppm limitation was critical or that the claimed method operates differently at different points within the prior art range of 150 ppm or less
 - ClearValue did not argue that Hassick failed to enable the disclosed method
 - Hassick provides an example at 60-70 ppm, but the Federal Circuit is clear to note that this example does not anticipate
 - It is the disclosure of the range of 150 ppm or less, which, when combined with the lack of allegation of criticality or evidence demonstrating any difference across the range, that anticipates



Highlights

- A range limitation is a genus limitation
- Embodiments disclosed in the prior art that fall within the claimed range (and meet all the other limitations of the claim) will anticipate the claim



Highlights

- A range limitation is a claim limitation
- When only ranges are disclosed in the prior art, the disclosed ranges must be considered to determine whether they anticipate the claimed range
- Overlapping ranges also raises potential issues of obviousness



Highlights

- When a prior art range overlaps or encompasses a claimed range, evidence of criticality of the claimed range appears to impact the determination of anticipation as well as obviousness



102/103 Rejection

- Claim [1] rejected under [35 U.S.C. 102](#) ([2]) as anticipated by or, in the alternative, under [35 U.S.C. 103\(a\)](#) as obvious over [3].

Examiner Note:

1. This form paragraph is NOT intended to be commonly used as a substitute for a rejection under [35 U.S.C. 102](#). In other words, a single rejection under either [35 U.S.C. 102](#) or [35 U.S.C. 103\(a\)](#) should be made whenever possible using appropriate form paragraphs [7.15](#) to [7.19](#), [7.21](#) and [7.22](#).



102/103 Rejection

- MPEP 706.02(m) –
 - Form Paragraph 7.27 may be used in cases when the ranges disclosed in the reference and claimed by applicant overlap in scope but the reference does not contain a specific example within the claimed range



Thank You!

Jean C. Witz

Quality Assurance Specialist

Technology Center 1600

571-272-0927

jean.witz@uspto.gov